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ABSTRACT

Developed for use in library building projects--whether they involve remodeling, expanding, or erecting a new structure--this handbook discusses the roles of the library administrator, the board, the librarian, the architect, the library building consultant, the interior designer, the building contractor, and others. It also addresses the major stages of a building project from needs assessment, planning, and design, to construction and occupation. Although the handbook focuses on community libraries serving populations of about 25,000 (which are predominant in Wisconsin), the information provided is intended to be useful regardless of the size or nature of the building process. While the 1978 edition of this handbook was targeted to a Wisconsin audience, the current version has reduced its emphasis on Wisconsin-specific issues. The focus has not been eliminated, however, and references are made to Wisconsin statutes and regulations. Readers outside Wisconsin must be aware that laws in their states governing the powers of the library board, architect selection, or the construction bidding and contract awards process may differ. It is noted that readers may read the chapters in order or focus on particular chapters. (54 references) (SD)

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Wisconsin Library Building Project Handbook



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Foreword

According to a 1987 survey conducted by the department's Division for Library Services, the average library building in Wisconsin is 40 years old. In those 40 years, the collections and services the state's libraries provide have grown and changed significantly.

Truly, our society's dependence on easy and speedy access to great amounts of information has put demands on library services that were unforeseen 40 years ago. To meet those demands, libraries continue to expand and improve the diversity of their collections and the services they provide.

In addition, today's libraries participate in—and often initiate—more and more community efforts, such as sponsoring literacy projects for adults and reading programs for children.

As you may expect, the number of library users also has grown. In fact, circulation per capita increased in Wisconsin more than one-third from 1978 to 1988. However, many library boards, despite their best efforts, have encountered difficulty in keeping up with the public's demand for service. When this happens, the board often looks for ways to meet the increased demand. Usually, the answer is to expand.

Such expansions need to be carefully planned. Recent changes in collections, services, and patronage dramatically affect a library's space requirements. Future expansions also need to be considered.

This publication, the *Wisconsin Library Building Project Handbook*, helps those involved in library expansion projects to prepare a plan—from perception of the need for more space through the occupation of a new facility—that fulfills a library's unique space and service requirements. The handbook also informs the reader of the processes for bidding and construction, offers advice on selecting architects and contractors, and supplies tips on how to avoid common pitfalls.

By following the guidelines described in this book, those participating in the building project—from the library administrator to the general contractor—can learn what to expect from each other, and thus build a strong, cooperative working relationship. The end result will be a well-designed library facility that will fulfill the community's needs for many years to come.

Herbert J. Grover
State Superintendent

Preface

The work of Raymond M. Holt, author of the first edition of the *Wisconsin Library Building Project Handbook*, produced an invaluable resource on public library facilities planning and construction. Since its publication in 1978, the handbook has been distributed throughout Wisconsin and the Midwest and has gained nationwide attention.

This revised edition reflects many of the changes that have taken place affecting public library space needs. Since 1978, librarians, architects, and others involved with space planning have become more aware of individual libraries' unique service requirements and of how those service requirements translate into unique space requirements. For instance, new zoning codes—such as more parking space for patrons' vehicles—place new demands on site selection. In addition, the increasing use of automation and the introduction of a greater variety of nonprint resources affect the lighting, electrical, and other requirements of library buildings. These are among the trends addressed in this revision.

While the first edition was targeted to a Wisconsin library audience, the updated version has reduced its emphasis on Wisconsin-specific issues. However, that focus has not been eliminated; numerous references are made to Wisconsin statutes and regulations. Readers outside Wisconsin need to be aware that laws in their states governing the powers of the library board, architect selection, or the construction bidding and contract awards process may differ.

Preparing this revised edition was an exciting challenge. Thanks are due to Larry T. Nix, director of the Bureau for Library Development, and Leslyn M. Shires, assistant superintendent for the Division for Library Services. Much appreciation also goes to the following Department of Public Instruction staff members who contributed to this handbook's production: Patricia Braley and Nikki Denison, text editors; Jessica Early, proofreader; Neldine Nichols, cover designer; Victoria Rettenmund, graphic artist; Annette M. Winter, word processing operator; and Philomena "Phil" Hanna, program assistant. Thanks also to Durrant Architects, Inc., in Madison, Wisconsin, for providing the blueprints used in the production of this book.

Special thanks go to Ray Holt, who produced the original text and encouraged my interest in library facilities and space planning.

Anders C. Dahlgren

Introduction

The demands of the Information Age have placed increasing pressure on libraries to renovate, expand, or construct new facilities. Dramatic increases in printed matter, nonprint media, the capacity for automating library operations, and new concepts in library systems and networks all affect library space needs and organization.

This handbook was developed for those participating in a library building project, whether it involves remodeling, expanding, or erecting a new structure. Even though community libraries serving populations of about 25,000—which are predominant in Wisconsin—are the focus of this handbook, the information provided is useful regardless of the size or nature of the building project. Similarly, the issues that arise in remodeling or expanding a library are often the same as those in planning a new building or in converting an existing building for library use.

The *Wisconsin Library Building Project Handbook* discusses the roles of the library administrator, the library board, the librarian, the architect, the library building consultant, the interior designer, the building contractor, and others. It also addresses the major stages of a building project—from needs assessment, planning, and design to construction and occupation.

Library building projects are complex endeavors. For this reason, Chapter 1 provides a brief overview of the entire process to give the reader a frame of reference before becoming involved with the individual steps. Some readers may read the chapters in order, others may prefer to focus on a particular chapter(s).

Of course, the ultimate determinant in library facility planning, and the focus of this book, is the library user's needs. User input can be obtained from library boards, special citizens' committees, or local Friends of the Library organizations. Additional help with library building projects is available from your regional library system and the state library agency. In Wisconsin, contact the Bureau for Library Development, Division for Library Service, Wisconsin Department of Public Instruction, P.O. Box 7841, Madison, WI 53707.

Successfully resolving your library's space needs can be a lengthy, complex task. If this handbook enables those who accept this challenge to create library facilities that provide optimal library services for its users, it will have achieved its goal.

Creating Improved Library Facilities—An Overview



Library building projects usually begin when someone—whether staff member, library trustee, or user—expresses concern that the current facility is hindering the provision of services. These projects usually present a number of unfamiliar questions for the library board and staff. How large a collection does the library need? How many seats and what kind of seating? How much space do the service areas require? Is there enough space on the existing site to support an addition? Would more people use the library if it were moved to a new location?

The initial response of any group of local library planners should be to familiarize themselves with these issues by reading the literature, visiting recently expanded or new libraries, or attending seminars. Before examining the details of a library building project, it's worthwhile to look at the process in terms of its basic steps. Such an overview sometimes is overlooked when a building project is initiated suddenly due to unforeseen circumstances—an unexpected bequest of funds, a natural disaster, the opportunity to expand the library as part of a larger municipal project, and so on. While this may change the order of certain steps, it seldom precludes the need to run the same course. Adequate planning is still paramount.

Basically, a building project can be divided into five relatively distinct segments, although the first two overlap. These phases are

1. the conceptual phase,
2. the planning phase,
3. the architectural implementation and development phase (including interior design),
4. the construction phase, and
5. the occupation phase.

It's important to clearly distinguish the various parts in order to establish schedules and priorities, even though to the uninitiated it may seem that everything must be done at once. Most successful library buildings—those that are adequately sized, properly designed, and user-oriented—result from following these steps. Eliminating or drastically curtailing any of the steps will almost inevitably result in a facility with needless shortcomings.

The Conceptual Phase

The conceptual phase marks the origin of the building project. The actual point of beginning may differ from one community to the next, but the genesis will probably cover the same ground.

Needs Assessment

Do you really need a new, remodeled, or expanded library facility? While this question may appear elementary, it's crucial to reassure those who approve funds for the building that the need for additional space has been clearly and carefully established. Establishing this need requires

- analysis of community needs for library services and materials,
- projections of growth for the library collections and staff, and
- plans for the development of additional library services.

Information gathered in the building process is necessarily cumulative. The more thoroughly these and related questions are documented in a needs assessment, the better the library administrator can assist others on the project.

It's important for the library administrator and others concerned with the project to become familiar with current library design. A review of the literature on library space planning is a good place to start. See Appendix A for a bibliography to guide staff and board members in this program of self-education. Tours of libraries that have recently been expanded can provide an idea of potential services in a larger building.

Evaluating Alternatives

Having determined that a need for space exists, the next step is to evaluate alternatives. The feasibility of each alternative depends on many factors, including the amount and type of space required, condition of the existing structure, site availability, and unique local factors. In any case, at least four alternatives may be weighed; they are to

- remodel the existing library,
- expand and remodel the present facility,
- convert another structure to library use, or
- design and construct an entirely new library building.

Carefully exploring these alternatives, which are discussed in Chapter 3, at the outset can save time in the long run. This means establishing criteria for impartial evaluation of the alternatives. Admittedly, assumptions of space requirements and costs at this stage of planning can be only rough estimates. Nonetheless, conscientious estimates should provide a useful pattern that indicates the best course of action.

The Planning Phase

After completing the foregoing preliminaries, actual planning can begin. This includes preparing a written building program statement and assembling the project team.

The Building Program Statement

A building program statement, in brief, represents the library's instructions to the architect. Chapter 4 deals with the details of preparing the building program statement; Appendix D supplies a list of suggested topics to address and Appendix E provides an excerpt from an actual statement. It's hard to locate the precise place of the building program in the library project sequence. Sometimes writing a building program statement is the first step taken after need has been established. In other cases, resolving major issues such as financing and site selection may postpone preparation of the building program statement. However, you should prepare a written building program statement sometime after realizing the need for a building and prior to retaining an architect.

A well-prepared, thorough, written building program statement is the key factor in designing a successful library building. Among other things, it provides the library

administrator and staff with a new perspective on the library's services and operations, which prompts them to set priorities, evaluate alternatives, and make decisions that should improve services and efficiency.

The library administrator must thoroughly understand the purpose, goals, and content of the building program. This can be accomplished by reading appropriate literature and studying building programs that have resulted in good library structures elsewhere.

Who should write the building program statement? One possibility is the library administrator. Library building consultants, who have experience in analyzing library space requirements and relationships, may specialize in writing building program statements. Occasionally an architect may be chosen for the task, but this is advisable only if the library has a strong and experienced staff for information input and review.

The person responsible for writing the building program statement must know which data will be useful to the architect, understand how it can be gathered, and be able to present it meaningfully. This requires an understanding of basic architectural terms and tools, such as relationship drawings and flow diagrams. Preparing the building program statement involves many hours of research, study, review with staff and others, and writing. The person charged with preparing the program statement must have adequate time for this lengthy and intensive task.

Although the building program statement is written specifically for the architect, it also serves to provide a common basis of understanding among the project team and a foundation for future decision making. To ensure utmost compliance with the program statement, have it officially endorsed by the appropriate authority (in most cases, the library board) and to refer to it in the architect's agreement.

Assembling the Project Team

Bringing together those who will serve on the project team is another part of Phase Two (the planning phase). Some who read this handbook will be involved with projects too small to require a full-scale project team in the formal sense. Still, the concept is useful, since those who work closely on a project must still work as a team.

The more formal project team is a relatively recent development growing out of the need for the continuous involvement of all interested parties in the planning and construction of major buildings. It offers the best method yet devised for ensuring maximum input and control at all stages of the project.

Normally, the project team includes

- the owner's representatives (library board members, and/or city or county officials),
- the architect,
- the library administrator, and
- the library building consultant.

At different stages, the project team will be joined by representatives from the municipality (which ordinarily provides funding for the project), city or county building officials, and, after award of the bid, the building contractor.

Others also may be asked to join the project team, depending on the size of the project and local conditions. This may include special engineering consultants or representatives of particular groups, such as the physically handicapped or minorities, who may feel they have a special stake in the library building.

Each member of the project team should have official authorization to serve in this capacity and understand the scope of his or her responsibilities. This will avoid the possibility of conflict later in the project.

Since the project team will meet frequently and intensively, membership should be

restricted to those able to meet for long periods of time on short notice. The project team is a working group in every sense of the term, and not a place to reward individuals in the community for public service. A good deal of homework usually is involved, and the ability to communicate ideas, adjust to others, and maintain long-term working relationships are essential characteristics. Chapter 5 further describes the project team approach.

Choosing an Architect

Normally, the architect is chosen after a certain amount of work has ensured the future of the project. In most instances, the building program statement will have been prepared, a site determined, and a method of financing secured. Sometimes, however, it's necessary to retain the architect to help determine site adequacy, approximate project costs, and so on. In such cases, the architect needs to know if the client intends to use his or her firm for the entire project. Fees for preliminary work may or may not apply to the total fee, depending on the contract.

Choosing an architect requires skill and understanding. The library staff, library board members, and others concerned with the choice should be fully aware of the architect's role and responsibilities. A formal application and an interview often are part of the selection process. Chapter 5 explains this in more detail. Also, Appendix H provides you with an Architect Evaluation Matrix and Appendix I supplies a number of interview questions to use in the selection process.

Choosing a Library Building Consultant

In some cases, a building consultant may be retained to help local planners assess needs, evaluate alternatives, and describe the library's space needs to an architect. Typically, a library building consultant is a librarian who has had extensive experience with library space planning and construction issues. The recommended process for selecting a consultant is similar to that for selecting an architect. Some criteria include the consultant's ability to read and understand a given situation, to listen to local planners, and to communicate the library's needs clearly.

Site Considerations

Choosing a site can present a very real problem in many communities; in some it may be used as a diversion by those who oppose the project. The site selection process is likely to elicit strong feelings, and every effort must be made to minimize haggling over emotional issues.

The facets of site selection are virtually limitless. Cost of land almost always is a major issue. Other common factors include convenience, safe access, and whether or not a library is an appropriate use of the land parcels in question.

If the project is concerned with remodeling and expanding an existing library, site issues are obviously confined to adjacent properties. Are these properties large enough? How much will they cost? Are they properly oriented toward the existing structure? Will their use create new problems of access and safety? Do they present hidden problems of geology, topography, or buried objects? Sometimes the municipality needs the land adjacent to the library for other purposes that come to light only when the library contemplates expansion.

If a new structure is to be constructed at a different location, the library administrator must understand the process of site selection and compile relevant data. Many sources in the literature offer site recommendations for local planners to consider, but these will have to be adapted to the particular community. Selection criteria should be objective and possible to evaluate. Sometimes using a weighted scale of criteria is helpful; this approach is explained in Chapter 6.

Problems can arise when the library occupies a structure that the community views as an historic monument. This is likely to occur with increasing frequency as our library buildings age and the public becomes more concerned with preserving older structures. Solicit the aid of structural engineers and architects familiar with area architectural history to help compile factual data. Tagging the library building needlessly as an historic monument can be an insurmountable barrier to the objective consideration of alternatives.

The Dollars and Cents of Building Projects

Funding is a major hurdle in almost every building project. Thus, it's important that the library administrator understand the factors involved in project costs as well as the normal sources of revenue. In most instances, funding for the project will be provided from sources over and above the library's normal operational budget. Funds for the project may be held separately from the library's regular budget. If there's no reserve fund on hand, you'll need to secure start-up funds for initial planning efforts.

Throughout the project, planners will need to consider the cost of operations in the expanded building. The library administrator also must be able to weigh first costs of construction against long-term, lower operating costs requiring higher initial investment. The financial side of building projects is discussed in Chapter 7.

Estimating Project Costs

To determine how much money is needed for the project, various items must be considered, including land acquisition; professional fees for architects, engineers, consultants, and others; construction; furniture and equipment; and occupation of the building. These costs often relate directly to the size—the number of square feet involved—of the project and require input from individuals familiar with the current construction market in your area.

Funding Sources

The methods most frequently used to fund library projects include

- municipal appropriations (bonding and pay-as-you-go financing),
- loans,
- lease/purchase agreements,
- federal and state grants,
- gifts and bequests, and
- public subscriptions and donations.

The library administrator should understand the pros and cons of these various methods and help determine which is most likely to be acceptable to the community. When there's no clear-cut choice, a municipal finance consultant can provide invaluable and relatively inexpensive help. This saves a great deal of time and can avoid the possibility of bitter debate by partially informed board and council members.

Unless money is available from gifts, bequests, or similar sources, library facility funding may require more persistence, understanding, and finesse than any other step. It also may take the most time. Funding must be addressed fairly early in the project, since the amount of money available for the building is a major determinant for planning and design.

Implications for the Annual Operating Budget

The library administrator must determine the impact the building project will have on the library's annual operating budget as early as possible. Usually this is best done after the design of the building has been approved and a furniture layout established, which in turn permits detailed evaluation of any required staffing changes. The most obvious differences will occur in such areas as personnel, utilities, maintenance, and contracts for equipment repair and maintenance.

However, the library administrator must not overlook more subtle implications for collections and services. Increased use almost always results from a new or remodeled library building. This exerts a heavier demand for new materials, more wear and tear on existing collections, and so on.

The library administrator should take great care in estimating operating costs affected by the building project. Projected costs then should be evaluated against revenue sources to provide a frank appraisal of the building project's long-term budgetary implications.

The Architectural Implementation and Development Phase

The architectural implementation phase involves creating plans for an expanded facility. It entails translating the library's statement of need, which is found in the building program statement, into a specific plan for an expanded library facility.

Architectural Implementation

The development of architectural drawings falls into three different stages: the schematic drawings, the preliminary or design development drawings, and the working drawings.

The architect should be encouraged to spend as much time as necessary on the schematic drawings, since that's where basic design problems are solved.

As a first step, the architect becomes completely familiar with the written library building program, discussing it in detail with the project team. An analysis may include space allocation studies, adjacency (or space relationship) sketches, and site studies. These studies determine how best to meet the major requirements of the building program.

The architect then provides some simple conceptual sketches relating the basic spaces to one another and to the site. These sketches are refined into the schematic design. The schematic phase will result in drawings that broadly define the floor plan and elevations. In other words, you'll know what the building will look like and how the major functions will be organized. In the case of a remodeled or expanded building, the schematic drawings also will describe the linking the new structure to the old.

After the library board or the designated municipal body authorizes the schematic drawings, the architect proceeds with the preliminary design, also known as the design development phase. The floor plans receive careful scrutiny to ensure that every function and operation has been addressed. The architect starts to work with structural, mechanical, and electrical engineers to design the specific systems to be used in constructing the building.

After the design development drawings have received official approval, the architect enters into the third stage, which will result in working drawings and specifications. The end product is a set of drawings that describes in great detail every facet of the building

and how it is to be constructed. The specifications, which constitute a good-sized volume on most projects, are a detailed set of instructions to govern construction procedures, the selection of materials, the quality of workmanship, and the contractor's warranties. After the final revisions have been made to the working drawings and specifications, these items become part of the bidding documents and the project is ready for the building contractor. The complexities of the architectural implementation and development phase are discussed in Chapter 8.

Interior Design and Furnishings

Interior design and the selection and installation of furnishings begin during the architectural phase and continue throughout the construction phase. This step in the building planning process often occurs in parallel with other planning activities. In fact, some information about desired furniture and equipment will appear even earlier as part of the building program statement to provide general guidance. Chapter 9 provides a more thorough discussion of interior design.

Interior Design

Interior design and the selection of appropriate furniture and equipment are complex parts of the building project. The architect usually has some knowledge in this area, but may appreciate the assistance of an interior designer. Since the public's reaction to the building will be conditioned largely by what it sees—colors, textures, furniture, and styles—it is extremely important that all elements are coordinated carefully into a pleasing total experience.

The process is complicated by the multitude of materials, finishes, colors, and styles now on the market. To select the most appropriate items requires knowledge of the range of choices, an appreciation of the services the library will provide, and the atmosphere it seeks to convey. Floor and wall coverings need special attention since they do much to set the spirit of the building.

Furniture Selection and Installation

After analyzing the requirements for each piece of furniture and studying the items available on the market, the architect or interior designer usually will assemble a number of alternatives for the project team to evaluate. After the choices have been made, specifications are carefully written. Depending on the requirements of the local jurisdiction, items may have to be submitted to bid. If items are bid, similar furnishings usually are combined into groups in the name of expediency.

Scheduling acquisition of furnishings usually is complicated. Purchasing furniture and equipment normally occurs sometime after building construction begins. Availability of furniture varies widely, and the architect or interior designer must stay aware of market conditions and allow enough lead time to make sure the furniture arrives before the building opens. As the items arrive, the architect or interior designer should inspect them carefully for defects or damage. When the building is ready, each piece of furniture, beginning with the shelving, will be placed precisely according to the floor plan.

In addition to movable furniture, the library probably will have built-in counters, desks, and cabinets. Built-in furnishings are designed by the architect or interior designer during the course of architectural development. Such furnishings, referred to as case-work, may be a part of the general building contract or bid as a separate item for cabinetmakers.

Plans Analysis

During each stage of architectural planning, project team members should examine the drawings in detail. Techniques and concerns of blueprint reading and plans analysis are provided in Chapter 10.

As planning proceeds, the library administrator must review the drawings carefully to determine whether the program requirements are being met and how well the building appears to operate. Plans analysis should include a study of traffic flow in the library.

Coordinating the plans with the building program statement requires tabulation of stack capacities, seating, and so on, as well as comparison with the program statement. Each area of the library should be analyzed separately and integrated into the whole.

The Construction Phase

The next phase of the building project consists of the actual construction work, which begins with soliciting bids from building contractors and ends with completion of the facility.

Bidding and Contract Negotiation

State and local regulations determine the schedule and sequence for awarding the project to a building contractor. Normally, bid solicitation begins with the advertisement of the project in local newspapers, legal newspapers, and contractors' publications. The jurisdiction's engineering or public works department should have these arrangements well in hand.

Contractors interested in the project review copies of the final working drawings and specifications, then submit sealed bids. The job usually goes to the lowest bidder who meets the qualifications established by the jurisdiction. A contract then is negotiated and signed and work gets under way. For more details, see Chapter 11.

Construction

Construction is an exciting time in any building project, as staff, board members, and local residents begin to see the fruition of weeks and months of planning. Chapter 12 discusses the construction phase.

During construction, the general contractor assumes responsibility for erecting the building according to the plans and specifications. The work of various subcontractors (electricians, plumbers, and so on) is coordinated through regular job-site meetings, which review progress on the job, clarify questions that may arise from differing interpretations of the plans, plan upcoming work, and anticipate conflicts and problems.

Ordinarily the architect represents the library at these meetings. Through job-site meetings and other visits to the site, the architect reviews the contractor's work and is available to interpret the working drawings as needed. Based on observations of progress at the job site, the architect vouches for the contractor's applications for payout. The library board then approves these applications.

During construction, unforeseen conditions may require a change in the building plans. For instance, specified material may have been discontinued by the manufacturer, or excavators may uncover soil unsuitable for the library's foundations. Whatever the cause, most plans will need revision as work progresses. Requests for changes in the plans are known as change orders. The architect should review all change orders, and

because change orders often affect the cost of a project (although not always as an increase), the board has final responsibility for approving them.

When construction is almost finished, the architect and contractor (along with representatives from the library) will schedule a detailed tour of the library to itemize the remaining tasks. Usually the building can be occupied after this "punch list" of tasks to finish has been certified by the architect and the contractor.

The Occupation Phase

The last phase includes moving into the building and settling into the library's new environment.

Moving and Settling In

Whether the construction phase lasts only a few months or spans a year or more, the library administrator will find the building project will continue to take substantial time and effort. Although there may be fewer meetings with architects and project team members, a multitude of other activities and decisions take their place. While tentative decisions may have been made earlier, as construction nears completion, planning intensifies for the move into the new facility and arranging for dedication ceremonies.

This also is a time for acquainting the staff with the new building and the arrangement of services, collections, and operations. Provide a thorough inservice training program so personnel can operate effectively in the new surroundings from opening day. This is especially important if the library will take on more staff. As opening day approaches, the library administrator should bring the project's public information program to a climax.

And then there's the move itself. Depending on the extent of the materials and personnel to be moved, the distance to be covered, and the necessary preparation, moving may take a day or two or several weeks. It's important to consider the pros and cons of various moving techniques and whether the library should try to remain open during this period.

Should community groups be asked to help, or should commercial movers be hired for the job? How can the collections be moved with the least risk of damage and the best chance of finding their proper places on new shelving? The best approach is to give these and related matters adequate attention before decisions have to be made under pressure. A well-organized moving plan can save money, time, and tempers.

The process of settling into the new building continues for the first several months while minor difficulties are resolved. These may include leaking roofs, fixtures that break down under use, readjustment of furnishings to better suit actual working conditions, and other problems. It usually takes at least a year to balance the heating and cooling equipment, adjusting it for seasonal changes. This involves regulating thermostats and numerous adjustments to the airflow throughout the building.

Special consideration should be given to innovative features that may require a longer break-in period before they perform as planned. While these minor frustrations can be irritating, they are inevitable. Thus, the library administrator must be prepared to deal with each problem by understanding the role of the architect and contractor in providing remedial service to the building and equipment. Also, library staff are likely to be more tolerant if they are informed that fine-tuning adjustments may go on for a year or more before the system operates as planned.

Whether remodeled, expanded, or a new structure, the library building project offers an opportunity for improved maintenance. The amount and type of space to be allowed for

custodial functions should be addressed during the development of the building program.

More information on what to expect when occupying the remodeled or new library building is in Chapter 13.

Evaluation: Alpha and Omega

Just as the library project usually begins with an assessment of space needs, so should it culminate in an evaluation of the project's impact on library objectives and management. How has the project affected library use? Community awareness and support? Annual operating costs? Long-term planning for future needs? Forthright responses to such questions provide partial information, while additional facts come from analyzing statistical data and opinions expressed by users and staff.

After six months or a year, a thorough review session with the library board is in order. Similar evaluations should occur regularly to provide ample information for long-range planning.

Pressure points requiring future attention will emerge during evaluation. Some may relate to collection development or staffing, while others may indicate changes needed in seating or shelving, and so on. If library use appears to be increasing faster than anticipated, it may be necessary to modify the library's long-range plans and schedule a future addition or consider other alternatives for acquiring more space. Chapter 14 expands on the indispensable process of evaluation.

Summary

This chapter provided an overview of the major considerations of most library building projects, whether they concern remodeling, expansion, or a new building. The five major phases have been designated as

- the conceptual phase,
- the planning phase,
- the architectural implementation and development phase (including interior design),
- the construction phase, and
- the occupation phase.

Consideration also must be given to related issues such as funding, plans analysis, and evaluation. Readers may go directly to the appropriate chapters for more detailed information.

Needs Assessment— The Starting Point

2

Most library building projects usually result from prolonged need and require a specific and definite push to overcome inertia. Municipal officials and the public often require compelling evidence before they heed the call for action. It's up to library administrators to initiate this call, and the first step is to conduct a needs assessment.

Needs assessment involves determining the shortcomings of the library building as they relate to current space limitations, projected space needs, and building deficiencies. This can be a somewhat tedious and sometimes embarrassing task since it may involve exposing limitations that the librarian and library board have overlooked or covered up. For this reason, it may be helpful to have objective assistance from a library building consultant or someone acquainted with this process.

Determining the Community's Library Service Needs

When shelves are overflowing, seating is abandoned for more book stacks, and staff work space is crowded into tiny corners of public areas, it seems obvious the library needs more space. Yet, it's amazing how many libraries continue to operate in just such a manner year after year. Some patrons may curtail their use of the library because they find the conditions unpleasant, yet they fail to identify their reaction with the library's cramped conditions. Thus, it usually falls upon the library administrator and library board to determine the actual space requirements and to voice the need.

In the past, public library space needs have been determined by applying standards or measures of floor space per capita. This is no longer recommended for at least two reasons. First, the standards are dated. The last such recommendation, published by the American Library Association (ALA), appeared in 1962 in *Interim Standards for Small and Medium-Sized Public Libraries* (Chicago: ALA); and it fails to account adequately for nonprint material and automated services.

Second, per capita measures of floor space don't allow for differences in need among communities of equal size. Differing service priorities can result in different space needs. In response to the tremendous diversity of service needs in communities across the country, the Public Library Association (PLA) developed *Planning and Role Setting for Public Libraries*¹ to help local libraries determine their local service needs. State-level standards for library service (*Wisconsin Public Library Standards*, for instance) provide another useful tool for needs assessment.

Identifying service needs entails an understanding of the community. Warncke has provided the library field with excellent discourses on techniques for community analysis. Lancaster also has described techniques for evaluating the effectiveness of library services.²

Wisconsin Public Library Standards

Many state libraries and state library associations periodically issue standards for public libraries and public library service. Wisconsin's public library standards are presented in the form of a checklist of minimum service goals. The standards address governance, administration and funding; staffing; collections; services (including reference services, programming, and services to users with special needs); public relations; and access and facilities.

Chapter 9 of *Wisconsin Public Library Standards*, which is devoted to access and facilities, should be of special interest. The standards have been structured in a manner that encourages local planners to supplement them with other techniques, such as those described in PLA's planning process.

Developing a Plan for Services

Planning and Role Setting for Public Libraries describes seven steps local libraries can take to develop a plan for services. They are as follows:

1. Planning to plan: preparing for planning tasks
2. Looking around: gathering information about your library and the community it serves
3. Roles and mission: selecting roles and defining a mission
4. Writing goals and objectives: providing a framework for implementation and evaluation
5. Taking action: selecting activities and tasks to attain goals and objectives
6. The planning product: reporting the results of planning activities
7. Review: evaluating accomplishments and recommending future actions, and initiating the process again.

The final step in this process leads directly back to the first step and a renewed planning cycle. This process results in a plan of service—a series of goals and objectives that will outline the library's service targets and guide its development over the coming years. These goals (and more importantly the sense of direction and purpose that a plan can provide) become instrumental in understanding the library's priorities. They provide an outline of the library's service and space needs.

Translating Service Needs into Space Needs

The calculation of space needs requires an inventory of services and furnishings required to support the community's library needs as well as the application of some standard space allocations.

A variation on the space needs question is, "What must the library house in order to meet the community's service needs?" How many volumes, how many user seats, and so on are required for optimum service? The next sections describe basic space planning calculations and how to apply those calculations to current and projected library space needs.

Basic Space Needs Calculations

Space needs should be explored at least once every five years, using the needs assessment methods recommended in the following discussion and in *Public Library Space Needs: A Planning Outline*.³

The purpose of an initial space needs assessment is to provide a starting point to evaluate the library's present and future building needs. The initial assessment serves as the basis for developing a written library building program statement (see Chapter 4).

You'll need to estimate space needs for six basic types of space: collection space, user seating space, staff work space, meeting room space, special use space, and nonassignable space.

Collection Space

Planners can estimate future collection needs by applying a standard, projecting a rate of net acquisitions over a period of time, or comparing the library's current rates of holdings per capita with those of nearby peer institutions. In any case, planners can make an assumption as to the number of volumes the library will need to house. From this assumption, they can derive an estimate of space needs.

To estimate optimal shelving space requirements, public libraries usually use the figure of ten volumes per square foot of floor area. The estimate of ten volumes per square foot presupposes an ordinary variety of adult trade books on full-height shelving (84 or 90 inches tall) installed on five-foot centers—that is, with a three-foot aisle—and leaving the top and bottom shelves vacant for future expansion. A more rigorous estimate of shelving density for adult trade books using standard, full-height shelving may be 15 volumes per square foot, which assumes using the top and bottom shelves.

The actual shelving density for different parts of the collection can vary from five volumes per square foot up to 30 volumes per square foot, depending on the type of material being housed, the height of the shelving unit, the width of the aisles, and other factors. Compact shelving can result in even greater capacities per square foot of floor space. If books are shelved too densely, however, circulation may be adversely affected and the cost of reshelving volumes returned from circulation and in-library use increases significantly because of the frequent need to shift books from shelf to shelf to find space.

The figure of ten volumes per square foot permits maximum flexibility and minimizes the number of books placed on difficult-to-reach top and bottom shelves, while leaving adequate working space on each shelf for several years. For purposes of an initial estimate, therefore, it's reasonable to base the required space on the number of volumes to be housed, divided by ten.

In a similar manner, initial estimates for essential nonprint formats also may use the assumption that the material can be housed at ten items per square foot. This may apply to phonodiscs (record albums), audio cassettes, videocassettes, and compact discs.

Of course, specific space requirements will be determined by the media involved, the particular storage device used, and whether security concerns lead the library to employ a "double-box" storage system (in which the original is held in a locked cabinet or behind a staff desk while the display sleeve or some other dummy copy is available on the shelves for browsing). All these variables affect the specific space requirements, but in the meantime, dividing the total number of nonprint items by ten provides a reasonable preliminary estimate.

Periodicals ordinarily require two distinct shelving arrangements: display shelving for current issues and storage for back files. Display shelving for current issues usually employs a sloping shelf for three or four periodicals showing the cover of the magazines. Other shelving units that do not permit cover-out display are available, and they do allow more periodical titles to be housed in a limited amount of space. However, these units are less attractive and not as easy to use as the display shelving. Depending on the height of the shelving unit and the number of shelves, a single sloping-shelf unit can display from nine to 18 titles or more. On the average, current issues of periodicals can be housed at 1.5 titles per square foot of floor space. To determine an initial estimate of space needed for current periodicals, divide the number of titles to be displayed by 1.5.

The space required to store periodical back issues is affected by the number of titles retained and the average length of the run of back issues. To estimate space allocation to house periodical back issues, multiply the number of periodical titles retained by the average number of years held back, and multiply that result by 0.5.

Taken together, these calculations of space needed for books, media, and periodicals provide a general estimate of the space required to house a given collection.

Collection Space Calculations

To estimate the space needed to house the library's book collection, divide the total projected number of volumes by 10:

$$\# \text{ of volumes} \div 10 = \text{space for books}$$

To estimate the space needed to house the library's recording collection, divide the total projected collection by 10:

$$\# \text{ of recordings} \div 10 = \text{space for recordings}$$

To estimate the space needed to display current periodicals, divide the number of titles to be displayed by 1.5:

$$\# \text{ of periodicals} \div 1.5 = \text{space for periodical display}$$

To estimate the space needed to store back issues of periodicals, multiply the number of titles to be retained by the average number of years that will be held, and multiply that number by 0.5:

$$\# \text{ of periodicals} \times \# \text{ of years to retain} \times 0.5 = \text{space for periodical storage}$$

User Seating Space

There has been a growing concern that public libraries may be supplying more seating in new buildings than necessary. It can be difficult to judge the number of seats that will be needed since a new or recently remodeled facility often attracts more users.

On the other hand, it may be the kind of seating provided rather than the total amount of seating that exceeds the need. For instance, seating should include chairs at tables, study carrels, and in lounge settings. Different seating environments have been shown to encourage different types of use in public settings. The proper balance among these types of seating environments will be affected by the role the library seeks to fulfill in its community, the types of patron interactions, and the use the library seeks to encourage.

The space required for seating is well established at 25 square feet per person seated at a table and 40 square feet per lounge or casual chair. Seating in a study carrel requires about 30 square feet per seat. Seating around listening carrels requires slightly more space, about 35 square feet per seat. Thirty square feet per seat can be considered a general average. So, to determine the amount of space your present seating should occupy, count the number of seats provided at tables, carrels, and in lounge areas, then multiply the total by 30.

User Seating Space Calculations

To estimate the space needed to provide adequate user seating, multiply the number of projected seats by 30 square feet:

$$\# \text{ of seats} \times 30 = \text{space for user seating}$$

Staff Work Space

As the requirements for collection seating space vary depending on the specific shelving or seating environments, the amount of space required for individual staff work stations varies depending on the activities to be accomplished at each. A simple paging station, consisting of wall-mounted sorting shelves with room in front to maneuver book trucks, may require as little as 70 or 75 square feet; administrative offices may require 300 square feet or more.

Given this wide range of space needs for staff offices, work space requirements for staff will average about 125 to 150 square feet per staff member. Libraries large enough for departmentalized staff may wish to refine this figure by allowing 125 square feet for professional staff and 100 for clerical and nonprofessional staff.

In addition, public service desks typically require a little more space to allow room for staff operations on one side and the user on the other. For each staffed public service station, assume a minimum of 150 square feet.

It's especially important to note that the allowance of 125 to 150 square feet per station depends on the number of staff work stations rather than the number of individuals on the library payroll and whether those individuals are full-time employees. For instance, the library may only employ one half-time staff member for processing new material and repairing worn and damaged material, yet it could be to the library's advantage to provide a separate work station for processing and repair, to avoid repeatedly setting up supplies at a shared work station and storing supplies afterward.

Some staff members may benefit from multiple work stations. A children's librarian or a reference librarian, for example, will need a public service desk and may need a separate office area where review journals can be examined, and so on.

Staff Work Space Calculations

To estimate the space needed to support staff work routines, multiply the number of work stations by 150 square feet:

$$\# \text{ staff work stations} \times 150 = \text{space for staff work stations}$$

Meeting Room Space

In most public libraries, programming activities are an important aspect of library services, and one or more meeting rooms are necessary. Library meeting rooms usually are available for community use for free or for a modest fee. In many smaller communities, the library's meeting room may be the only public meeting space available. A room specially designed to support presentations of various sorts can be a great asset for the community.

Meeting spaces in public libraries can be categorized into three types. General meeting rooms or multipurpose rooms are usually large, flexible spaces that can accommodate audiences ranging from 30 or fewer up to 250 or more, depending on the needs of the community. There may be projection facilities or special lighting controls. Larger rooms will require sound reinforcement systems.

A conference room for committee meetings and other small group meetings also may be desirable.

For libraries with extensive children's programming activities it may be advantageous to provide a separate program room or a program corner in the children's department. Otherwise, an active schedule of children's programs in the library's general meeting room could curtail the use of the general meeting room by other groups. A separate space for children's programs in the children's library also keeps the children attending a storytime or other program closer to the material the program encourages the children to use. Usually, this programming space is scaled to a smaller audience—25, 30, perhaps 40 children.

For multipurpose meeting rooms requiring row or theatre seating, estimate required space at ten square feet per person. Therefore, a meeting room for 50 will require roughly 500 square feet. Conference rooms should be estimated at 25 to 30 square feet per person, and a children's programming area can be estimated at ten square feet per person.

Meeting Room Space Calculations

To estimate the space needed for traditional lecture hall or theatre seating, multiply the total projected audience capacity by 10:

$$\# \text{ of audience seats} \times 10 = \text{space for meeting room}$$

To estimate the space needed for a conference room setting, multiply the projected conference room capacity by 25:

$$\# \text{ of seats} \times 25 = \text{space for conference room}$$

To estimate the space needed for a children's program area or room, multiply the projected desired capacity by 10:

$$\# \text{ of audience seats} \times 10 = \text{space for children's programming}$$

Special Use Space

In addition to the foregoing types of space, there usually is a need to accommodate special functions such as the catalog, index tables, photocopiers, public access microcomputers, and other types of public services. One way to estimate these space needs is to develop a short inventory of the types of furnishings these spaces will require and assign appropriate square foot allowances to each. For a selection of representative space allowances for different types of furniture, see Appendix B.

For example, an index table that can seat up to six ordinarily requires 140 square feet of floor space, which accounts for the table and sufficient space for traffic to circulate around the table; a photocopier requires 30 to 35 square feet (allow more space if a sorting table is provided nearby); a letter-size vertical file requires ten square feet; an online public access terminal requires 30 to 50 square feet, depending on whether it is for stand-up or seated use and if a printer is attached.

Space allocations for these miscellaneous uses typically comprise 7 percent to 10 percent of the total area of a public library building. However, an easier, though less accurate, method is to add the estimates for the four types of space discussed previously and multiply that total by 0.10.

More special use space will be needed if the library operates a bookmobile, van, or other type of vehicle. A typical van or small truck, for instance, may require a garage of 375 square feet plus an additional 100 to 150 square feet of loading dock space, for a total of 475 to 525 square feet. A full-size bookmobile will require a larger space. Actual dimensions should relate to the measurement of the vehicle to be garaged.

If a staff lounge was not considered as part of the staff work areas, it should be included under special use space.

Special Use Space Calculations

To estimate the space needed for special use purposes, add the allocations for collection space, user seating space, staff work space, and meeting room space together, and multiply that total by 0.1:

$$\begin{array}{r} \text{Collection space} \\ \text{User seating space} \\ \text{Staff work space} \\ + \text{Meeting room space} \\ \hline \text{Total} \times 0.1 = \text{space for special use} \end{array}$$

Nonassignable Space

At this point it will be helpful to distinguish between the terms net square feet and gross square feet. The total area in a building, the area on all floors enclosed by the outer walls of the structure, is known as the building's gross area. It can be divided into "assignable" and "nonassignable" space. Net square footage, sometimes referred to as assignable space, is the amount of usable space in the building.

Assignable space can be defined as "the sum of all areas (measured in square feet) on all floors of the building, assignable to, or useful for, library functions and purposes. It includes space for readers and reading areas, bookstack or related storage areas for the book collections and other library materials, working spaces for staff, space for services to readers (including the card catalog), public service desks, copying equipment, aisles between bookstack ranges and library furnishings, and similar spaces."⁴

Nonassignable space, on the other hand, is defined as "those areas or rooms of the library necessary for the general use and operation of the building but not serving specific library functions, such as foyers, vestibules, corridors (but not aisles in bookstacks or [among] other furnishings), stairs, elevators, toilets, janitor rooms or closets, ventilation ducts, and mechanical equipment areas"⁵.

Nonassignable space also includes space required for general storage for supplies, gift books, seasonal displays, and so on. Specific needs for nonassignable space will be dictated largely by architectural requirements, which will vary from project to project.

For estimating purposes, it can be assumed that from 20 percent to 30 percent of the building will be classed as gross or nonassignable space. The space needs that can be estimated for collection space, user seating space, staff work space, meeting room space, and special use space represent 70 percent to 80 percent of the gross area of the building. Typically, a small building will have a higher proportion of nonassignable space; it may approach the higher end of the common range of 20 percent to 30 percent of the gross area for nonassignable space. A large building will have a lower proportion of nonassignable space.

A new building, with a design that is not constrained by existing structural conditions, is likely to have a lower proportion of nonassignable space than an addition to an existing building or the conversion of an existing building.

To get an initial estimate of nonassignable space, add the estimates for the five types of space discussed above—collection space, user seating space, staff work space, meeting room space, and special use space—and multiply that total by 0.25.

Nonassignable Space Calculations

To estimate the space needed for nonassignable purposes, add the allocations for the five preceding types of space, and multiply that total by 0.25:

$$\begin{array}{r} \text{Collection space} \\ \text{User seating space} \\ \text{Staff work space} \\ + \text{Meeting room space} \\ \hline \text{Total} \times 0.25 = \text{nonassignable space} \end{array}$$

Current Space Needs

These calculations and formulas can be employed to evaluate the current conditions and space allocations in the library. Such an evaluation can take the following three perspectives:

- Analyzing the relative proportions of floor space devoted to each of the six types of library floor space
- Comparing the space needed by current service parameters (collection size, number of seats in the present building, and so on) with the space actually allocated to identify current space deficiencies
- Comparing the capacities of the space allocated to particular functions with what is actually housed in those areas to identify a degree of overcrowding.

Each perspective can be used to highlight different aspects of the library's current space deficiencies.

Analyze Present Use Patterns

This is the most basic level of analysis, and other analyses of current space use and deficiencies usually return to this basic information. It involves classifying the different areas in the library into each of the six types of floor space, measuring the size of each area, and calculating each area's relative proportion.

These proportions can be compared later on with the corresponding proportions in the projections of the library's long-term space needs. This comparison may reveal, for instance, that the collection space in an expanded building should occupy not just more space, but a larger *percentage* of the gross area in the building than it presently does, which would indicate that the need for an expanded collection is especially severe.

In the meantime, do the existing proportions reflect constraints on the library's ability to deliver services? Many times, when a library board and staff start to consider an expanded facility, they have made a series of smaller adjustments in how the library uses its space, converting certain areas to new purposes. Over time, staff work space may have been converted to collection space. Does the proportion of space allocated for staff

work stations seem unusually small? Or perhaps reader seating has been removed in favor of more shelving, or the meeting room has been converted to a new or expanded public service department. How do the allocations for reader seating and meeting rooms compare with other types of space?

If you can determine the original allocation of space for these areas from old plans, it may be useful to compare how these proportions have changed, which likely reflects a shift in the library's service priorities.

Identify Current Space Deficiencies

It can be useful to cast the library's space needs in terms of current service levels. Using the space needs calculations discussed previously, the library's present services can be translated into space needs, and those space needs compared with the space allocations available in the present building. If the library presently owns 50,000 volumes, the space needs calculations suggest that the library should devote roughly 5,000 square feet for collection space (at ten volumes per square foot). If the analysis of the library's present space allocations shows 3,500 square feet devoted to collection space, it suggests the library should have almost 50 percent more space than it now has just to house today's collection. That becomes another important measure of the library's current space needs.

In the same way, reader seats in the present library could be counted. A library with 50 seats should provide 1,500 square feet for user seating. If the library houses those 50 seats in 1,200 square feet, it suggests a degree of overcrowding to meet current service levels. Current staff work stations, meeting room environments, and special use spaces also can undergo similar comparisons.

Identify Current Service Deficiencies

The flip side of the library's current space deficiencies is the library's current service deficiencies. Service deficiencies can be measured by comparing the spaces currently allowed for various services with the collections and services the library *should* be providing. For example, a library may allocate 3,500 square feet for its collection. At ten volumes per square foot, this space should support a collection of roughly 35,000 volumes. The library may already crowd a 50,000-volume collection into this space, but local planners may have determined that the library should own 60,000-volume collection (this could be determined by applying state standards for public library collections or by comparing the holdings of libraries serving communities of similar size). This comparison documents that space is inadequate to house the library's present collection and prevents the library from expanding its collection to meet current service requirements. Similar comparisons can be made for user seating space, staff work space, and so on.

Summary of Current Space Needs

For illustration purposes, assume the following table represents a fair comparison of actual room space available and the amount of room required (according to space allocation standards) to adequately house existing collections, staff, users, and operations. In addition, assume that one small area is used as a makeshift (and crowded) meeting room for programs that attract as many as 50 people.

Table 2-1

Existing Space versus Estimated Space Needs		
Space Use	Existing Space	Estimated Space Needs
Collections		
58,355 vol. @ 10 vols. per sq. ft.	3,896 sq. ft.	5,835 sq. ft.
3,542 records @ 10 items per sq. ft.	246 sq. ft.	354 sq. ft.
146 periodical titles @ 1.5 per sq. ft. (display)	75 sq. ft.	97 sq. ft.
146 periodical titles @ 0.5 per sq. ft. (storage)	100 sq. ft.	365 sq. ft.
User Seating		
32 seats 30 sq. ft. each	500 sq. ft.	960 sq. ft.
Service Desks		
Circulation (2 stations)	210 sq. ft.	300 sq. ft.
Reference	80 sq. ft.	150 sq. ft.
Staff Work Areas		
Circulation (1)		
Technical Services (3)	280 sq. ft.	750 sq. ft.
Director (1)		
Multipurpose Room		
To seat 50	325 sq. ft.	500 sq. ft.
Total Assignable Area	5,712 sq. ft.	9,311 sq. ft.

Table 2-1 shows that the amount of space available in the present building is only a little more than half the number of net square feet that might be considered adequate for the existing collection, library staff, seating accommodations for library users, and so on.

Such figures often provide a starting point to prove inadequacy of presently available space. The totals also may indicate if the best solution is to build an addition or construct new facility. Information for such a presentation as Table 2-1 can be compiled relatively easily and needs no particular expertise.

However, the problem of space needs cannot stop here. It's the library's present *and projected* needs that should ultimately determine the quantity of materials, types of service, number of staff, and special requirements to be supplied. Based on a profile of the community, the users' potential library needs provide the soundest method of estimating future square footage requirements. This process is described below.

The Projected Space Need

It's assumed that a library building project, under normal conditions, should be based on the space needed for the library to accomplish its objectives in the community for at least the next 20 years. Thus, it's necessary to arrive at some general estimates of space requirements founded on projections of community growth.

Though the 20-year time frame is well-accepted among library space planners, there is no compulsion to use it. In fact, given the rate of demographic change in many communities and the rate of technological change everywhere, it's virtually impossible to

project a library's planning environment accurately over a period of 20 years. But, because library capital projects involve large expenditures, there is understandable motivation to ensure that the expanded library facility will meet the community's present and future needs.

This translation of future community needs into square footage for the library's collections, services, users, and staff requires the library administrator to develop a quantity of data and to apply professional judgment. The basic space needs calculations also are applied in this step, except that they are applied against *projections* of the library's service needs. The library board can provide considerable assistance in this process, both as a source of information and as a sounding board for evaluating results.

Establish a Design Population

The first step in the projection of library space needs is to define a planning environment. The key is obtaining reliable population data and projections. You can usually obtain population estimates from local or regional planning bodies. It's relatively easy to obtain population projections for an individual municipality. Determining how to account for nonresident use is another matter. Nonresidents come from an undefined geographic area. All nonresidents in nearby defined geographic areas may not use the library, and some may use several neighboring libraries.⁶

There are several ways of estimating the nonresident population. One way is based on the proportion of resident borrowing and the proportion of nonresident borrowing. If one assumes that residents and nonresidents tend to borrow material at roughly the same rate, and if residents account for a certain proportion of the library's total circulation, then one can assume that residents account for an equal proportion of the design population.

Furthermore, if one assumes that the proportion of resident to nonresident borrowing will remain constant for the duration of the library's planning period, one also can assume that the proportion of projected resident population to projected design population will remain constant. A library's design population may be calculated by dividing the projected resident population by the percentage of resident borrowing.

As an example, let's look at a hypothetical community. The current population for City B is 21,575, and the city planning office has estimated the population will increase at an average rate of 1 percent per year for the next two decades, giving the city a population of nearly 26,100 in 20 years. If residents presently account for 75 percent of the library's total annual circulation, it would be reasonable to assume that the 21,575 current residents represent 75 percent of the current total service population. If planners are confident that the balance between resident and nonresident borrowing will continue at that same rate in years to come, then the projected resident population of 26,100 would represent 75 percent of the library's design population. The design population would be 34,800.

If planners have reason to believe that the balance of resident to nonresident borrowing is likely to shift in years to come, a revised relative proportion can be used. If, for instance, planners believe the proportion of resident borrowing will increase from 75 percent to 80 percent in the future, the residents could be said to account for a larger share of the design population. In this example, 26,100 residents would represent 80 percent of a design population of 32,625.

As part of defining the planning environment, the librarian, library staff, and the library board will develop additional information about the service community. Further work by the library staff may reveal that the educational level is rising. Due to the proximity of a university branch and a technical institute, the highest grade completed by the average adult may be expected to move from the present 11.8 to 12.3 in ten years, with a further increase to 12.8 by the end of the second decade. Given a continued decline of the community's manufacturing base, perhaps planners also could assume that the

numbers of people engaged in the professional, managerial, and technical fields will grow, while unskilled labor will continue to decline.

Considering all these factors, the library administrator and board must arrive at a concept of the future population in terms of its complexity and probable demands on all educational and informational services provided by the community. Using the population projection figures, the library administrator now is ready to make several calculations about the amount of space required for library services during the next two decades.

Projecting Library Service Parameters

In order to complete an initial assessment of public library space needs, planners will have to project service requirements in certain key areas, specifically

- how large will the library's collections grow to be?
- how many reader seats will the library need in the future?
- how many staff work stations will be required?
- what type of meeting facilities will the library need, and for how large an audience?

Planners can draw a projection of space needs from these planning assumptions.

Wisconsin libraries can use the state standards to help determine how large their collections ought to be. The standards provide a recommendation for collection size based on the library's service population. Table 2-2 lists the current standards for collection size.

Table 2-2

Wisconsin Public Library Standards for Collection Size			
Population Range	Volumes per capita	Periodicals per 1,000 pop.	Recordings per 1,000 pop.*
Less than 2,000	6.0**	20.0***	118
2,000 - 3,999	6.0	20.0	150
4,000 - 7,999	5.0	16.0	133
8,000 - 14,999	3.5	12.5	116
15,000 - 24,999	3.25	11.0	121
25,000 - 49,999	3.0	8.5	111
50,000 and over	2.5	7.0	100

* The standards do not make specific recommendations regarding audio recordings; however, these are the median rates of holdings per 1,000 population reported by Wisconsin libraries in 1985.

** But not less than 6,000 volumes total.

*** But not less than 20 titles total.

Other factors also may be considered to determine projected levels of collection growth, such as annual rates of net additions to the collection, comparisons with neighboring communities of similar size, and so on. Once a planning assumption has been made regarding the projected size of the collection, it can be converted to a space need by using the calculations described in this chapter.

Planners also can make service assumptions about the number of general user seats the library should provide. Unfortunately, there is no precise way to measure the amount of seating a public library should supply. The literature contains several recommendations for reader seating, again based on the population of the community served. *Interim Standards for Small Public Libraries*⁷ indicates that for a community in the population range of 10,000 to 24,999, the library should provide 40 seats, plus four seats per 1,000 for

population in excess of 10,000. By comparison, Joseph Wheeler,⁸ after 30 years of observation, determined that public libraries serving communities of less than 10,000 population should provide ten seats per 1,000 population and those in the 10,000 to 35,000 category should allow for five seats per 1,000. Table 2-3 provides both methods for comparison.

Table 2-3

ALA Interim Standards versus Wheeler Recommendations for Public Library Seating	
<i>ALA Interim Standards</i>	
Population	Recommended Seating
Less than 2,500	13 seats
2,500 to 4,999	16 seats + 5 seats per 1,000 pop. over 3,500 served
5,000 to 9,999	23 seats + 4 seats per 1,000 pop. over 5,000 served
10,000 to 24,999	40 seats + 3 seats per 1,000 pop. over 10,000 served
25,000 to 49,999	75 seats + 3 seats per 1,000 pop. over 25,000 served
<i>Wheeler Recommendations</i>	
Population	Seats per 1,000 Population
Less than 10,000	10.0
10,000 to 35,000	5.0
35,000 to 100,000	3.0
100,000 to 200,000	2.0
200,000 to 500,000	1.25
500,000 and up	1.0

Applying these respective formulas to a service population of 2,000 would result in a recommendation of 13 reader seats from the *Interim Standards* formula and 20 reader seats from the Wheeler recommendation. A service population of 8,000 would require 35 seats according to the *Interim Standards* formula and 80 seats by the Wheeler formula. A service population of 16,000 would require 64 seats according to *Interim Standards* and 80 seats according to Wheeler. And, a service population of 32,000 would require 96 seats by the *Interim Standards* calculations and 160 by the Wheeler formula.

The Wisconsin Department of Public Instruction's Division for Library Services has developed its own public library seating recommendation, which attempts to unify the various formulas found in other planning guides. This alternate recommendation is based on a series of suggested seating allocations made for selected benchmark populations (see Table 2-4).

Table 2-4

Wisconsin Division for Library Services Library Seating Recommendations	
Population	Seats per 1,000 population
2,000	12.5
4,000	10.0
8,000	7.0
15,000	5.0
25,000	4.0
50,000	3.0
100,000	2.0
500,000	1.0

At each of these benchmarks, a library should supply the number of seats per 1,000 population indicated in Table 2-4. A library falling between two benchmark populations should provide seating at a rate between the two corresponding rates. For example, a library serving 10,000 people should plan on providing seating at a rate of 6.25 to 6.5 seats per 1,000 population.

Against this background, the library administrator must project the local situation. Do library users tend to stay for longer or shorter periods of time? Are there heavy peak times when every seat is taken? After determining a service assumption regarding the required number of seats, it can be converted into a space need by applying previously discussed calculations.

Similar projections can be made to determine the number of required service desks and staff work stations. The total number of desks and work stations will include those that are staffed only at certain periods of the day. Specific requirements will depend on the library's service emphases and on its projected growth patterns. Projecting the number of needed staff work stations is difficult because planners must try to address future staffing requirements based on current staffing patterns. Those patterns may be restricted by the budget or the facility. By the time planning begins on an expanded facility, most staff work environments often are very inadequate. It's easy to project needs against current conditions, but if those conditions are too poor and if the base for planners' projections of need are too low, then the projections also will be insufficient.

There is no simple solution other than to be aware of these factors and compensate for them if necessary. During visits to other libraries, examine how their staff rooms are arranged, where stations are located, and for what purpose. This will help alert local planners to a broader range of possibilities. After determining the number of staff work stations the library will require, calculate how much space they need.

In considering meeting room space, planners should look at the library's calendar of program events (acknowledging that the current building may significantly limit the numbers and types of programs the library can offer) and other meeting facilities that may be available locally for use by community groups. With a projection of the library's service requirements for meetings in mind, planners can estimate of space needs.

After planners have calculated projections of space needs for collection space, user seating space, staff work space, and meeting room space, they can calculate special use space and nonassignable space (special use space as a proportion—10 percent—of the subtotal of the first four types of space; and nonassignable space as a proportion—25 percent—of the subtotal of the first five types of space).

With the calculation of space needs in these six types of space, planners will have an estimate of the library's long-term space needs *based on the broad outlines of the library's own program of services*. Table 2-5 summarizes the application of these calculations on a hypothetical community.

Table 2-5

Summary of Space Needs for a Hypothetical Library	
Design Population: 12,000	
Collection Space	
42,000 volumes @ 10 per sq. ft.	4,200 sq. ft.
1,450 recordings @ 10 per sq. ft.	145 sq. ft.
150 periodical titles @ 1.5 per sq. ft. (display)	100 sq. ft.
125 periodical titles @ 0.5 sq. ft. per title retained for 5 yrs.	315 sq. ft.
User Seating Space	
72 seats (6 per 1,000 pop) @ 30 sq. ft. per seat	2,160 sq. ft.
Staff Work Space	
8 stations (3 in circulation, 3 in technical services, 1 future children's desk, 1 for the director) @ 150 sq. ft. per station	1,200 sq. ft.
Meeting Room Space	
General meeting room to seat 60 @ 10 sq. ft. per seat	600 sq. ft.
Children's programming room to seat 25 @ 10 sq. ft. per seat	250 sq. ft.
Subtotal #1	8,970 sq. ft.
Special Use Space	
@ 10% of Subtotal #1	897 sq. ft.
Subtotal #2	9,867 sq. ft.
Nonassignable Space	
@ 25% of Subtotal #2	2,467 sq. ft.
Gross Area Needed	12,334 sq. ft.

Condition of the Present Physical Plant

So far, needs assessment has only considered estimating space requirements based on present and future community service needs. Another essential approach to needs assessment concerns the condition of the present physical plant. As noted at the beginning of this chapter, the flaws in a building may be sufficiently obvious to compel action. However, they frequently are given little thought. Library users seem nearly oblivious to such problems, and staff members become accustomed to working within a particular environment and soon take such deficiencies and crowded conditions for granted.

Many buildings that appear to be sound structures may conceal serious defects. Because the safety of the public, the staff, and the collections is at stake, the library administrator must be fully aware of any such defects.

Analysis of a building's safety calls for expertise in various engineering skills. It's best to assess the physical plant in two steps: a preliminary survey by the library administrator and board, and a thorough study by qualified engineers.

The Preliminary Survey

The library administrator and/or board should carefully inspect the library building, focusing attention on the condition of these major areas:

- structure
- electrical
- mechanical
- plumbing

These findings should be compiled for review with local building officials and as a resource for engineers, architects, or others who will conduct independent investigations. Take care not to release this information until the facts are fully confirmed.

Some of this information can come from reviewing the library's fiscal and administrative records and noting the nature, frequency, and extent of building repair and maintenance problems. Does the roof need frequent repair? How often must electricians and plumbers be called? Does the heating and ventilating system require frequent service calls?

After this office work is done, tour the building with the following questions in mind:

Structure

- Do the physically handicapped have barrier-free access to the library, its collections, and services?
- Does the floor feel solid underfoot when a loaded book truck is moved across it?
- Is there any apparent deflection in the floor?
- Do the foundation and/or wall surfaces show signs of serious cracking?
- What is the condition of the roof?
- Do ceiling beams appear bowed?
- What is the condition of interior walls?
- Are there signs of severe moisture leakage in areas above and below grade?
- Is there evidence of periodic flooding in any part of the building?
- What is the condition of grout in exposed masonry?
- Do outside walks and steps remain flat and unbroken?
- Do interior stairs feel firm underfoot and are the handrails securely fastened?
- Is there any sign of wood rot or other deterioration in thresholds?
- Do windows close properly without undue pressure?
- Do doors fit squarely into their frames?
- Are there signs of doors scraping the floor?
- Is there evidence that asbestos was used in the construction of the building?
- Other?

Electrical

- Is the lighting adequate for the tasks performed in all parts of the building? (Consider the impact of computer screens on lighting requirements in libraries of all sizes.)
- Are the electric outlets adequate in number, load capacity, and location for both library and office equipment in use today and as well as for the next ten years? Twenty years? (Note the special power requirements of automated equipment of all types, from desktop microcomputers to minicomputers and larger computer equipment.)
- Are data transmission capabilities available throughout the building to support microcomputers linked in a local area network (LAN) or to support circulation terminals and public access catalogs tied into a mainframe?
- Can the lighting, electrical, and data transmission systems be adapted readily to reflect changing use patterns and accommodate new equipment?

- When was the building's electrical system last renovated?
- Are utility bills increasing significantly?
- How often do circuit breakers have to be reset or fuses replaced?
- Has it ever been necessary to run additional wiring to accommodate new equipment?
- Do the lights flicker or dim?
- Does the building have any history of difficulty with its electrical system?
- Is there room on the switch panel for additional circuits?
- Other?

Mechanical

- Does the present heating and ventilating equipment keep the building at satisfactory temperatures in all seasons?
- Are there areas in the library that evoke public or staff complaints for being too warm, too cold, or drafty?
- Is there adequate insulation in the ceilings?
- How old is the present heating and ventilating equipment?
- What does the library spend annually to maintain the mechanical equipment?
- Have there been difficulties in securing adequate fuel for the heating system during the last several years?
- Does the mechanical equipment transmit excessive noise?
- Are any special problems associated with servicing the mechanical equipment in its present location?
- Other?

Plumbing

- Is there an adequate number of toilet fixtures?
- Does the number of fixtures meet requirements for the physically handicapped?
- Is there any evidence of leaking pipes or fixtures in floors, walls, or ceilings?
- Are lavatories, toilets, and sinks in good condition with few, if any, chips or breaks in the porcelain surfaces?
- Is the library protected against flooding by floor drains in the restrooms?
- How often each year is it necessary to call a plumber?
- Has the library ever undergone extensive replacement or renovation of plumbing and fixtures? If so, when?
- Are drains chronically sluggish?
- Does the water supply and pressure entering the building seem adequate?
- Does the library seem to suffer from frozen water pipes more often than other structures in the area?
- Is there adequate drainage from the roof and the grounds during periods of thaw?
- Other?

Requirements for the Physically Handicapped

While we often tend to think of the physically handicapped as those who must use wheelchairs or other devices to get around, there are many others in our communities with less apparent physical impairments who also have difficulty using public buildings.

A significant number of people suffer from heart ailments, arthritis, and other handicapping conditions. The visually handicapped and hearing impaired also have special needs. Sometimes a person's mobility is restricted for only a period of time by an accident, stroke, or other temporary condition. Yet, it's people in just such circumstances who may need and make the greatest use of a public library.

Rather than focusing on only the obvious shortcomings, such as staircases without alternate ramps or elevators, restrooms with doors too small for entry, drinking fountains and public telephones too high to reach, and signs placed where they cannot be read, also look for inconspicuous barriers that also pose difficulties. A good introduction to basic concepts in accessibility is *Planning Barrier-Free Libraries*, issued by the National Library Service for the Blind and Physically Handicapped of the Library of Congress.⁹

At the national level, the standards for accessibility are described in "Uniform Federal Accessibility Standards" found in the Code of Federal Regulations (41 CFR 101, Subpart 19.6, Appendix A). Federal regulations for some funding programs (see 41 CFR 101-17.703) also refer to the accessibility standard published by the American National Standards Institute, "American National Standard Specification for Making Buildings Accessible to, and Usable By, the Physically Handicapped."

In Wisconsin, the subject is covered explicitly in ILHR 52.04, Wisconsin Administrative Code, under the heading, "Requirements for Barrier-free Environments." The details cover several pages and apply both to new construction and buildings that undergo more than a minimal amount of renovation or expansion. According to the state building code, all new construction must comply with code requirements regarding accessibility (ILHR 52.04(4)), Wisconsin Administrative Code. Existing structures must comply with the code in effect at the time of construction (ILHR 52.05, Wisconsin Administrative Code). However, in evaluating an existing structure, use current optimum requirements as criteria.

The state code defines three essential concepts relating to the handicapped: access to a primary floor, interior circulation, and toilet facilities. The code specifies that "access from the exterior grade to a primary floor, via a public entrance, shall be provided by means of ramps, grade-level entrances, or other means of access approved by the department [DILHR]." ¹⁰ Interior circulation must be provided "to all public-use areas of the building as specified in Table 52.04. Interior circulation between floor levels shall be accomplished by use of ramps, elevators, lifts, or other means of access approved by the department." ¹¹ There shall also be "accessible toilet facilities . . . on a primary floor or accessible from a primary floor;" at least 10 percent of the total number of toilet facilities provided on each floor must be accessible, with a minimum of one for each sex; or "one accessible toilet room is required in buildings accommodating 10 or less employees and less than 25 patrons." ¹² Code requirements in other states may vary.

As the building is surveyed with the physically handicapped in mind, consider the following questions:

- Are all exterior walks and ramps at least four feet wide?
- Do all exterior ramps have a slope of not more than one foot rise in 12 feet (1:12)?
- If an outside ramp has a 1:12 slope and is more than 30 feet long, are there level platforms at least five feet long at 30-foot intervals and anywhere the ramp turns?
- Is there a level platform at least five feet long at the top and bottom of each ramp?
- Are all interior ramps at least three feet wide?
- Do all ramps—exterior and interior—have a handrail 30 to 34 inches high?
- Is the main entrance door at least 32 inches wide?
- Are all interior passageway doors at least 32 inches wide (doors that open at 90 degrees from an interior corridor may require a width of up to 36 inches, depending on the width of the corridor)?
- Do any door thresholds extend more than 1/2-inch above the finished floor or carpeting?
- Are public toilet facilities accessible?
- Do public toilet rooms and toilet compartments provide for ease of access, usability, and uninterrupted mobility?
- Do toilet compartments with a front entrance have dimensions of not less than 36 inches by 78 inches?

- Do the toilet compartment doors swing out with sufficient clearance to open at least 95 degrees?
- Are grab bars, capable of supporting 250 pounds each, properly installed on either side of the toilet compartments?
- Are the seats of toilets mounted 17 to 19 inches above the floor?
- Is at least one lavatory mounted to provide 29 inches of clear space at the bottom of the apron with a maximum rim height of 34 inches?
- Are at least one mirror and towel dispenser or hand drier mounted at not more than 40 inches above the floor?
- Are international symbols used to identify accessible entrances, toilet facilities, drinking fountains, telephones, and parking spaces?
- Have all necessary 90-degree, 180-degree, 360-degree, and S-turns been designed to provide ease of access, usability, and uninterrupted mobility?
- Is there at least one water fountain and one public telephone mounted at a height convenient for functionally limited users (typically 40 inches above the floor)?
- Are elevator controls accessible to a person in a wheelchair? Are controls marked in Braille and/or raised letters?
- Are card catalogs accessible from a wheelchair, with top drawers no more than 45 inches from the floor and not less than six inches from the floor? Are public access terminals provided in accessible locations?
- Are bookstack aisles not less than 36 inches wide, with at least 42 inches clear at either end of the shelving range?
- Can a person in a wheelchair place books on the check-out counter and see the library staff working there?

These and many similar questions will reveal if your library building is adequately prepared for people with physically disabling conditions. If no one can recall many people with physical disabilities using your library, there may be some good reasons.

Energy Conservation

While the librarian and board may not be qualified to assess the efficiency of the library's heating plant, they can consider other aspects of energy conservation. The growing literature on energy conservation provides many guidelines and checklists.¹³ A few of the more common questions include the following:

- Are windows and doors adequately insulated?
- Are ducts leading from mechanical equipment to supply registers properly insulated?
- Is there adequate insulation between the roof and ceiling and in exterior walls?
- Could additional landscaping protect window areas from heat gain during the summer?
- Can the present light fixtures be replaced by more energy-efficient ones?
- Are there large areas of single-pane glass that could be replaced by energy-saving double- or triple-pane glass?
- Are hot-water pipes properly insulated?
- Would it be efficient to replace old furnaces and air-handling equipment?
- Do floor coverings provide adequate insulation at floor level?
- Is protective screening needed at the entrance to eliminate drafts and loss of air from the interior of the building?
- Can adjustments be made to the present heating system to increase efficiency?
- Can heating efficiency be improved through relocation or better use of thermostat controls?

Walking through the library building with a representative of a utility company or an engineer familiar with heating and ventilating can be most productive. This will help

sort out the easily remedied deficiencies from those those that may be difficult or prohibitively expensive.

Initial Review

The library administrator and board should carefully review the findings of the physical plant analysis. At this point, a city or county building official may be able to furnish some helpful observations. The building official will be able to compare conditions and cite the requirements of the applicable building codes. In Wisconsin, consult *Rules of the Department of Industry, Labor and Human Relations: Building and Heating Ventilating and Air Conditioning Code*, which presents the state building code set forth in the Wisconsin Administrative Code.

In addition, local government agencies may adopt more stringent codes, providing the provisions aren't in conflict with the state code. One such code that is widely accepted, sometimes with minor local revisions, is known as the *Uniform Building Code*, produced by the International Conference of Building Officials. Another is the *Basic Building Code*, produced by Building Officials and Code Administrators International.¹⁴ Since building codes are revised every year or two, be certain to use the most recent code authorized in your jurisdiction.

The Professional Survey

Architects and engineers can provide more detailed data concerning the building. Their survey should consider the building in terms of its adequacy to continue serving as a library for the next two decades. Recommendations should indicate current problem areas and the cost of remedial work. The report also should call attention to any potential problems that are likely to require repair during the next 20 years.

If the preliminary study indicates remodeling or expansion of the building, the professional survey also may include a feasibility study for such remodeling and additions. Here, the architects and/or engineers will need to assess the applicable building codes. They also will determine how well the building's structural, mechanical, and electrical systems can adapt to major remodeling or expansion. If an architect is involved, the same study can cover any special design problems that might arise.

The cost of such a study will be minimal, but should be carefully arranged for by contract; the library board should stipulate all the areas to be covered and require a written report of the findings. The study will help determine which of the various alternatives is most appropriate—remodeling, expanding, or constructing a new building.

The professional survey usually begins with a review of the findings from the first step of plant analysis. This is followed by on-site inspection of the building. The study is usually completed in a few weeks and normally concludes in a meeting between the architect and/or engineer and the library board to review the recommendations. The professional study provides an authoritative base for assessing the library building and for estimating the costs of remedying any serious deficiencies.

The Obsolescence Report

Local planners may find it useful to bring the information gathered in the analysis of the present building and projected service and facility needs together into a formal report. Such a report is sometimes called an "obsolescence report" in that it details the inadequacies in an existing and presumably obsolete structure.

An obsolescence report may feature any or all of the topics addressed in this chapter. It may include a brief inventory of current services and collections. A summary of the findings of the building survey should be included. Some communities have found that photographs or other illustrations can have more impact than narrative descriptions of the existing building. Projections of long-term needs are essential.

The precise format and content of the report will depend on the extent of the problems facing the library; the amount of time available to prepare the report; the expertise of the staff members (or library building consultant) assigned to write the report; and the expected receptivity of funding authorities to the report's findings (this can condition the tone adopted for the presentation).

Summary

After following the procedures outlined in this chapter, the librarian and the library board will have amassed information about the community's present and future library facility needs, including the following:

- the amount of space presently devoted to various aspects of library operations;
- the amount of space required to adequately house the present library;
- the amount of space that will be needed in the next ten to 20 years to meet the needs of the changing community; and
- an assessment of the present library structure in terms of its physical condition, deficiencies, and approximate costs of any necessary modifications.

This information will be used and reused in succeeding stages of the facility project and will more than repay the time, effort, and cost required to collect it. With this study in hand, the library board and administrator should be prepared to evaluate the alternatives presented in the following chapter.

Endnotes

1. McClure, Charles R., et al. *Planning and Role Setting for Public Libraries: A Manual of Options and Procedures*. Chicago: ALA, 1987.
2. Warneke, Ruth. *Analyzing Your Community: Basis for Building Library Service*. Springfield, IL: Illinois State Library, 1974.
- Lancaster, F. Wilfred. *The Measurement and Evaluation of Library Services*. Washington, DC: Information Resources Press, 1977.
- _____. *So You Want to Evaluate Your Library*. Urbana, IL: University of Illinois Press, 1988.
- The January 1976 issue of *Library Trends* (vol. 24, no. 3) is devoted to community analysis as well.
3. Dahlgren, Anders C. *Public Library Space Needs: A Planning Outline*. (Madison, WI: Wisconsin Department of Public Instruction, 1988).
4. American Library Association's Ad Hoc Committee on the Physical Facilities of Libraries. *Measurement and Comparison of Physical Facilities for Libraries*. Chicago: ALA, 1970, p. 19-20.

This definition goes on to state: "The number of square feet in the net assignable area is determined by measuring between the inside faces of enclosing exterior walls and corridor or permanent interior walls. Only corridor walls and those walls which are load-bearing normally are considered to be permanent. Where interior partitions are located between outside walls and corridor walls or permanent (load-

bearing) partitions, the measurements are to be taken to the center line of the interior partitions. Where there are slight projections or offsets of less than 12 inches, the distance between typical walls should be used. Floor areas occupied by built-in furnishings such as service counters, closets, and shelving are included in the wall-to-wall net square footage. No deductions are made for columns or for projections necessary to the building structure."

5. Ibid., p. 20.
6. For further discussions and other perspectives on calculating the extended service population for a public library, see *Output Measures for Public Libraries* by Nancy Van House, et al. 2nd ed. Chicago: ALA, 1987, pp. 35-36, 44; and "New Factor in Planning Public Library Buildings" by Robert H. Rohlf in *Public Libraries* (Summer 1987), pp. 52-53.
7. *Interim Standards for Small Public Libraries*. Chicago: ALA, 1962.
8. Wheeler, Joseph. *The American Public Library Building*. New York: Scribners, 1961.
9. Among the most useful sources of information about accessibility requirements and standards are the following:
 National Library Service for the Blind and Physically Handicapped. *Planning Barrier-Free Libraries*. Washington, DC: Library of Congress, 1981.
 "Uniform Federal Accessibility Standards." 41 CFR 101, Subpart 19.6, Appendix A.
 American National Standards Institute. "American National Standard Specification for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped." ANSI 117.1-1-1986, as revised. New York: American National Standards Institute.
 Department of Industry, Labor and Human Relations. *Wisconsin Administrative Code: Building and Heating, Ventilating and Air Conditioning Code*. ILHR 52.04, Wisconsin Administrative Code. Madison, WI: Department of Industry, Labor and Human Relations, updated annually.
10. ILHR 52.04(4)(a), Wisconsin Administrative Code.
11. ILHR 52.04(4)(b), Wisconsin Administrative Code. Table 52.04 further states that "access is not required to a mezzanine if duplicate facilities to those provided on the mezzanine are located on an accessible floor. Access is required to employee facilities, including but not limited to lunch rooms, change rooms and locker rooms required by s. ILHR 54.13."
12. ILHR 52.04(4)(c), Wisconsin Administrative Code.
13. Energy conservation requirements are stated in ILHR 63 of the Wisconsin Administrative Code. Note the library-specific requirements for lighting power budgets described in ILHR 63.41, Wisconsin Administrative Code.
14. *Uniform Building Code*. Whittier, CA: International Conference on Building Officials, 1988 (triennial). Also note the *Basic Building Code*, 10th ed. Country Club Hills, IL: Building Officials and Code Administrators International, 1987 (triennial).

Evaluating Alternatives

Armed with the basic information gathered during the needs assessment study described in the previous chapter, the library administrator and board are now aware of the approximate space the library requires for both the present and the next 20 years, and they have a detailed knowledge of the present library building's physical condition. It's time to examine alternatives.

Although a clear-cut solution to the library's facility problems may appear in some cases, planners usually must consider three—and possibly four—alternatives; they are

- remodeling,
- expanding the existing structure,
- constructing a new building, or
- occupying a building previously used for another purpose.

In each case, consider such factors as the amount of usable space available, the efficiency of that space, architectural considerations, the building's physical condition, site and location, options for future expansion, interim conditions during construction, and cost. If you're considering moving the library to a new location, your evaluation also must take into account the disposition of the existing building.

Remodeling the Present Structure

Remodeling the present facility usually is the first alternative to consider. This option assumes that interior space will be rearranged *without expanding the overall floor space* of the building. Remodeling depends on a variety of factors, of which cost is only one.

Usable Space

The most basic consideration in terms of remodeling is whether the library building has sufficient space that could be converted to a more useful purpose. Does the gross area projected in the space needs assessment compare favorably with the gross area in the building? Given the space needs typically projected over a 20-year time frame, it's unlikely there will be sufficient space in the existing building unless the building has an unused secondary level or shares the facility with another agency (such as a city hall) and that agency is preparing to move.

Remodeling a basement or second story may provide significant space and may be more economical than other alternatives. Depending on the structure, some partitions may be removed to create larger spaces, though reinforcement of overhead beams may be required.

Efficiency of Space

A potential problem in remodeling is that the space needed for specific departments may not correspond with the rooms available in the existing building. Is the present building designed with large open areas that may be easier to adapt to new functions, or does it have a series of smaller rooms that will require extensive remodeling to create spaces of the desired size? In the case of a small library that remodels a basement to house

part of the library's collections and serve users, additional staff may be necessary to provide service and supervision on both floors. Inefficient space layout is a common problem among many libraries designed during the Carnegie period, and there's a danger of compounding the original problem by investing money to perpetuate this shortcoming.

Physical Condition of the Present Structure

Another obvious question is whether or not the physical condition of the present structure warrants remodeling. The detailed examination of the building during the needs assessment and the maintenance and repair record will answer this question.

If extensive work is required—for instance, structural reinforcement and replacement of the electrical or mechanical systems—the preservation of the building may be questionable.

When contemplating remodeling, carefully weigh the implications of the appropriate building codes. Section 51.01 of the Wisconsin Administrative Code defines remodeling as:

... to change any building or structure which affects the structural strength, fire hazard, internal circulation, or exits of the existing building or structure. This definition does not apply to maintenance, reroofing, or alterations to the heating and ventilating or electrical systems.¹

The Wisconsin code further states:

The provisions of this code shall apply to all remodeling or alterations in any building or structure which affects the structural strength, fire hazard, exits, required natural lighting or replacement of major equipment. These provisions do not apply to minor repairs necessary for the maintenance of any building or structure.²

Buildings and structures erected prior to the effective date of the first building code (October 9, 1914) shall comply with the general orders on existing buildings, chs. Ind 160-164, issued by the department. Buildings and structures constructed after October 9, 1914, shall comply with the code in effect at the time.³

Make sure to enlist the aid of local building officials to help interpret the codes, and since these regulations are subject to change, take care to consult only the most recent code. Code requirements for accessibility are another factor to consider.

Accessibility

Depending on the percentage of the building involved in remodeling, ILHR 52.04 of the Wisconsin Administrative Code requires a degree of compliance with the provisions for barrier-free access:

- a. *More than 50% remodeled or added.* If more than 50% of the gross interior area of a building is remodeled, added to or both, the entire building shall comply with all applicable requirements of s. ILHR 52.04.
- b. *20% to 50% remodeled or added.* If 25% to 50% of the gross interior area of a building is remodeled, added to or both, that part of the building which is remodeled, added to or both shall be provided with the requirements of Table 52.04 and sub. (4).

- c. *Less than 25% remodeled or added.* If less than 25% of the interior area of a building is remodeled, added to or both, the requirements of Table 52.04 and sub. (4) need not be provided unless the remodeling or addition involves an entrance or exit or toilet facilities in which case the entrance or exit or toilet facilities shall comply with sub. (4)
- d. *Toilet facilities in remodeled buildings.* If an existing building having passenger elevators is remodeled in accordance with the percentages above, accessible toilet room facilities for each sex shall be provided to serve each 5 floors, or fraction thereof, and shall comply with the requirements of sub. (8)
- f. *Remodeling in stages.* The percentage requirements established in this subsection shall apply to the accumulative sum of any remodeling or additions, or both, undertaken after May 15, 1974.⁴

Other states or jurisdictions may have similar requirements.

Since these requirements pertain to such things as access to the building from the outside, the width of doorways, and restrooms, bringing an existing structure up to code may be very expensive. For instance, step-free access must be provided for the typical Carnegie-type structure with its long flight of entry stairs. Most library restrooms in older structures fail to meet handicapped requirements and must be extensively remodeled or replaced. If you must provide new restrooms, space and location may become major factors because restrooms should be placed where staff can supervise them easily. New plumbing fixtures and sewer lines can add significantly to the total project cost.

Site and Location

It's important to determine whether the library building is located on a site that will continue to be easily accessible to the public for the extended life of the building and if there is sufficient land available for parking and delivery. Landscaping also may be a factor.

Future Expansion

Before choosing to remodel, planners should consider the eventual need to expand the present building. The present site should be large enough to support any anticipated expansion, and the building should be positioned on the site so use of the site is not limited. On the other hand, the need for subsequent expansion may not figure too heavily if it seems likely that when the library outgrows the remodeled space, it may be time to build a new structure anyway.

Interim Conditions

What will happen to the library during remodeling? Will the building continue to operate with only minor disruptions, or will the collections and services be subject to frequent temporary moves? How will users be affected? Will it be necessary for the library to move to other quarters during major reconstruction? These questions reflect more than concern about inconvenience—cost is a factor as well.

Costs

Remodeling often is considered desirable because it seems economical. However, planners must gauge this against the actual benefits of remodeling. How much usable square footage will remodeling add? How long will this additional space be adequate? Because remodeling involves so many unknowns, the total cost often may exceed initial estimates. The specifics of each project vary enormously so the experience of others, even in neighboring communities, is of limited benefit. Ask architects and building contractors to supply cost estimates that will provide a basis for comparing this alternative with the others.

Expanding the Present Structure

The decision to expand also must be carefully analyzed.⁵ The criteria below can be helpful in evaluating this alternative.

Usable Space

Ideally, an addition will allow continued use of all the rooms and spaces in the existing building. Explore the degree to which the building can be used "as is."

What types of spaces are available in the present building? How large are the various rooms and service areas? How do those spaces compare with the library's projected space needs? This comparison can demonstrate that an inordinate amount of remodeling may be needed to optimize the space available in an expansion. Of course, in addition to matching projected departmental space needs with available spaces in the existing building, the resulting arrangement of service areas also should encourage maximum efficiency among all departments.

Efficiency of Space

Presumably, a building addition will use contemporary design to increase efficiency. Some additions provide useful space at vital points; others turn out to be appendages of marginal utility. Of utmost concern is the effect the addition will have on layout of collections and services, staffing, and supervision. Which functions will be located in the old building, and which in the new? Will additional staff be required because supervision cannot be maintained from the usual point(s)? An addition that makes library staff members travel unreasonable distances in the course of their work will be an expensive one. Architects frequently point out that unless design conditions are favorable, the dollars spent on expanding and remodeling an existing structure may be better spent on purchasing a smaller amount of more efficiently designed space elsewhere.

Architectural Considerations

The decision to add on to an existing structure depends somewhat on architectural considerations. How will the new area relate to the old structure? Will it be at the same grade or on a different level requiring ramps, stairs, or other types of vertical access? What kind of wall or walls must be opened or removed to join the existing structure to the addition? If load-bearing walls are altered, extensive reinforcing may be required. Can the addition be made compatible in design with the existing structure? It is imperative to run these questions by a qualified architect, who likely will add many more items to this list.

Physical Condition of the Present Structure

As with remodeling, the condition of the existing structure is of primary importance. The relevant building codes apply to improvements made on the existing building as well as to the portion to be constructed. Additions of any size are likely to require their own heating, ventilating, and air-conditioning systems and electrical panels unless the present ones conform to code and can be expanded as required.

Accessibility

Additions also must conform to regulations for the handicapped. In Wisconsin, for example, different access requirements apply depending on the scope of an addition. If an addition represents more than 50 percent of the gross area of a finished building, the entire structure must conform with accessibility requirements (ILHR 52.04 [6][a], Wisconsin Administrative Code). If an addition represents 25 percent to 50 percent of the gross area of a finished building, only the addition must conform with accessibility requirements (ILHR 52.04 [6][b], Wisconsin Administrative Code). If an addition represents less than 25 percent of the gross area of a finished building, only those portions of the addition that may involve an entrance, an exit or a toilet facility must conform with accessibility requirements. An important exception to this last rule is that if an addition is larger than 20,000 gross square feet, it must conform regardless of the proportion of the floor area it adds to the entire building (ILHR 52.04 [6][c], Wisconsin Administrative Code).

Site and Location

If a building is poorly located, an addition will compound its limitations. If the location is good, you must still determine whether there is sufficient land for the addition and for off-street parking, a delivery entrance, and so on. Sometimes constraints on an existing site will dictate an addition that cannot provide for optimum effectiveness for the public or staff. The resulting reorientation of functions within the structure will complicate and increase the cost of the project.

Future Expansion

As with remodeling, it's always important to look beyond the immediate expansion and consider the viability of a further expansion. This is especially true in communities with a rapidly growing service population. Will the site support a further addition? Is the expanded building likely to offer the type of cleanly designed, useful space that will readily accept another addition? As noted above, expansion usually introduces compromises in the planning environment, and each subsequent addition compounds the design limitations placed on the project.

Interim Conditions

Will it be possible to continue operations in the present library until the new structure is finished, or will it be necessary to move elsewhere for a part or all of the construction period? If the library continues to function in the same building, how much will construction and remodeling disrupt operations? Will users be driven away by the noise and mess of construction? The costs and inconveniences of remodeling and expansion merit serious consideration. An architect can be very helpful in answering

questions regarding the extent of such disruptions, interim conditions, duration of construction, and so on.

Costs

Where structures have been designed with future expansion in mind, an addition may be particularly cost effective. However, extensive remodeling, major structural changes, and acquisition of adjacent properties sometimes outweigh the benefits of retaining the existing building. An architect can help provide an estimate of remodeling or expansion costs.

Types of Additions

Several common types of additions are illustrated in the block diagrams in Figure 3-1. Wing additions work well when one or more units of the library's services, collections, or operations can be physically moved—for instance, the children's room, offices, or workrooms. However, wing additions sometimes create special access problems because users must walk through other library areas to gain entrance. In addition, a portion of the library may no longer be supervised from a single station, requiring more staff.

There's another possibility if the existing library building is an irregular shape. Expansions to irregular buildings are generally known as fill-in additions. Such expansions add space by reconfiguring the building into a rectilinear shape. The consequences of such an expansion vary widely, depending on the amount of new space created and the new internal relationships formed by the fill-in.

In some cases, the wraparound addition furnishes the best alternative because it preserves the original structure while providing a new facade and additional space on several sides. This solution, where the site permits, is sometimes designed so that most if, not all, the general public collections, services, and accommodations are in the addition—including a barrier-free entrance. The original structure then is remodeled for more specialized public or staff uses.

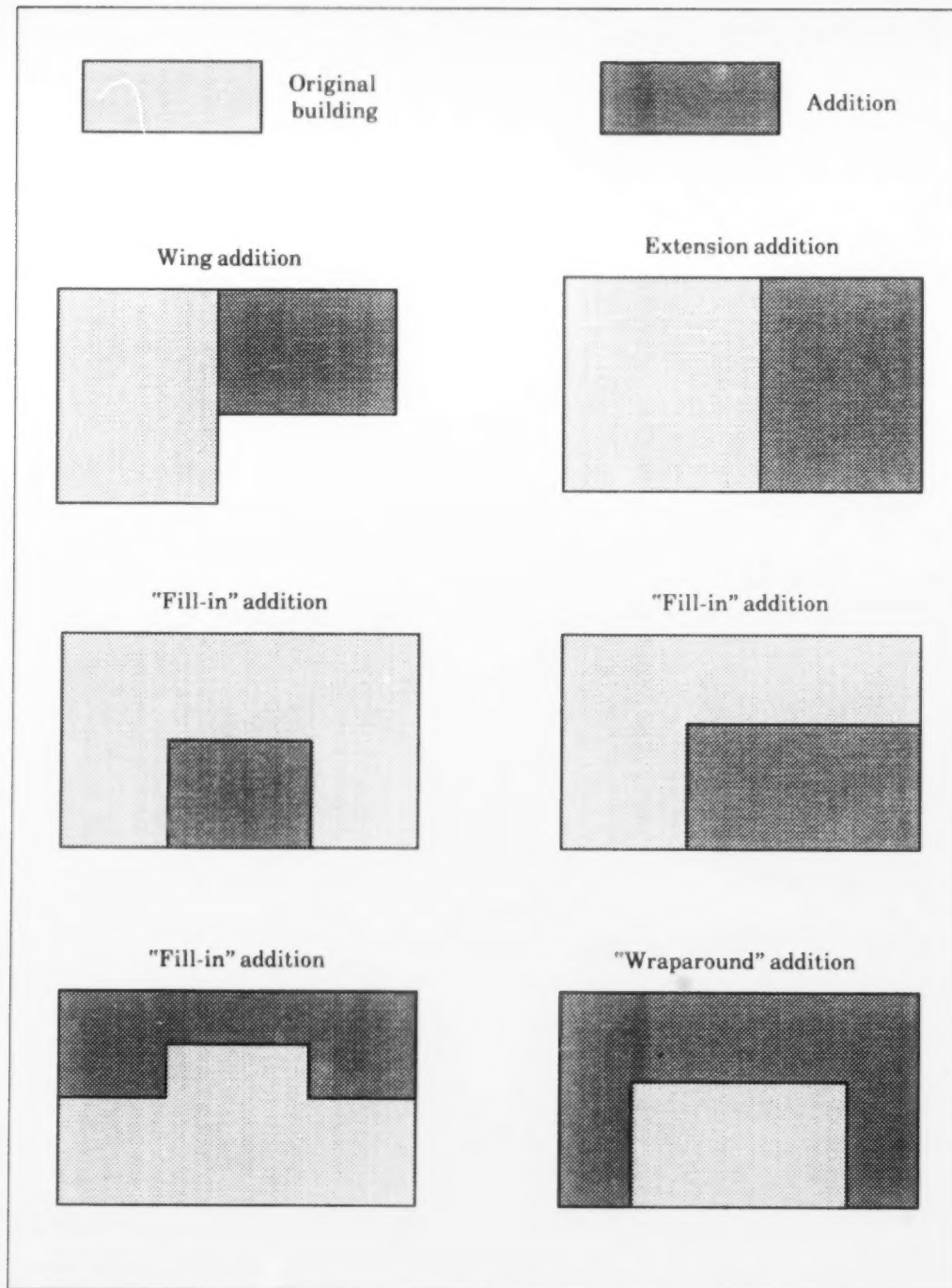
Where high ceilings exist, the planning team could consider adding a mezzanine to create needed floor space at a relatively reasonable cost. It seems like a natural solution, since all that empty space is already enclosed as part of the building. However, this decision depends on many factors, including the materials or services to be placed there, means of access to the public and staff, the ability to supervise the space, effect on adjacent spaces, structural adaptability, effect on mechanical systems and lighting, and cost effectiveness. In some cases, adding a mezzanine may conflict with the original design.

It also may be possible to build a second or third story addition if the original building can support vertical expansion. If public service functions are eventually located on this new floor, it will require supervision, which may incur added staff costs. Smaller libraries generally are better off to keep all public service spaces on a single level where supervision can be easily provided from a single, central circulation desk.

Building Reconfiguration

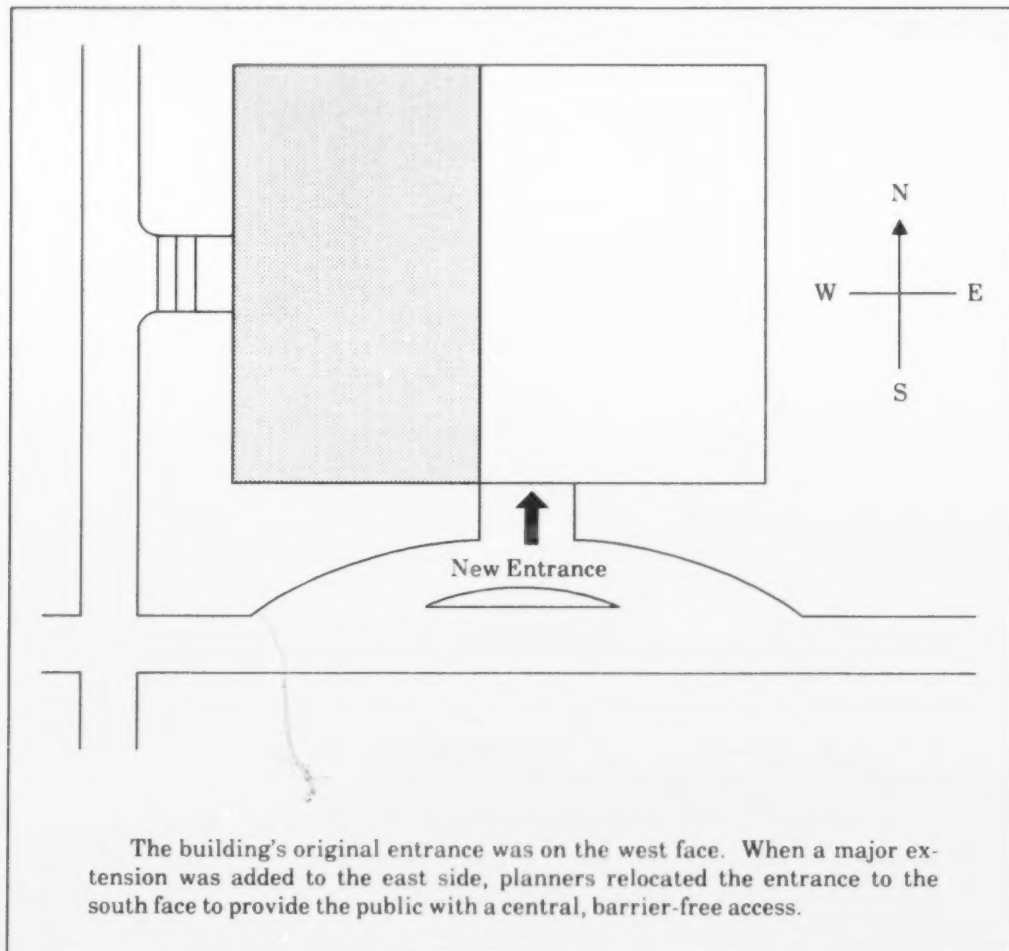
Building additions usually require a reconfiguration of the structure. Figure 3-1 shows a number of the most common placements for additions. By examining the shape and mass of the existing structure, it will be possible to study the best ways to enlarge the building. Obviously, these diagrammatic representations will be affected by the actual dimensions of the existing structure and the proposed addition. Figure 3-2 illustrates one way of reconfiguring the entry to improve access to all parts of the building.

Types of Building Additions



■ Figure 3-2

Relocated Entrance



Building a New Facility

A third alternative in the quest for more space is to design a new building. This alternative has many advantages as well as some disadvantages. In most instances, it deserves serious consideration and frequently offers the only satisfactory answer to the space problem.

Usable Space

New library buildings often reach 70 percent to 80 percent efficiency in terms of space utilization as compared to 50 percent—or sometimes even less—for older structures. The efficiency of a design refers to the proportion of space reserved for assignable (i.e., library) purposes. A less efficient design requires more gross square footage to deliver the same amount of usable floor space. This means a design for a building of 6,250 gross square feet that provides 5,000 square feet of usable space affords 80 percent efficiency. A design providing the same 5,000 square feet of usable space but requiring 8,335 gross square feet operates at 60 percent efficiency. Obviously, the more efficient design saves dollars by allowing the construction of a smaller building.

A new building frees designers from existing structural and design constraints and allows them to organize space more efficiently. For instance, if columns are necessary, these can be designed around a building module compatible with library shelving, thus maximizing flexibility. The new building approach also can anticipate future expansion through construction of unfinished areas and designing for later additions.

Efficiency of Space

A new building can take advantage of design techniques that encourage optimal relationships between collections, users, and staff functions. And, unless space requirements are too great, it can house public collections and functions on a single level, precluding the need to provide public staircases or elevators. Improved building security, energy conservation, and economical maintenance are further benefits of constructing a new building.

**Architectural Considerations*

The new library building can be designed as a well-integrated and efficient structure, using contemporary materials and methods to maximum advantage. The design can incorporate requirements for automated and other new technologies as well as meet all code requirements, including those for energy conservation.

Accessibility

New structures must meet all code provisions for the physically handicapped, eliminating costly renovation of existing facilities.

Site and Location

The location of the library building is of major importance. The site must have sufficient space for any required off-street parking and delivery access. Parking requirements usually are part of local building or zoning laws. Since libraries aren't always specifically covered by these laws, solicit an official interpretation of parking requirements very early in the planning. If planners anticipate future horizontal expansion, the site should be large enough to allow for it.

Future Expansion

The subsequent expansion of a new building is easier to anticipate. Unless site constraints would limit a later addition, architects can design the new building with future expansion in mind. Parking around the library can be configured to encourage one type of addition or another. Inside, the location of certain "fixed" services—restrooms, the entrance, and other such features that could be costly to change—can be planned with an addition in mind.

Interim Conditions

Unless the new structure will be built on the site occupied by the present building, library operations won't be affected except for the brief period during the move to the new facility. If the present site will be used for a new building, and the existing building razed, the library will need a temporary location during the demolition and construction period. Vacant store buildings or other commercial structures often afford temporary quarters. While moving a library twice is a substantial task, proper planning can minimize strain and cost. Seldom does the lack of suitable temporary quarters affect the decision to construct or expand a library.

Costs

Architects and building contractors can provide fairly accurate data on new construction costs as they are familiar with nearly all the conditions that may affect progress and costs. Of course, if a new site is purchased, the cost of the land will have to be added to the construction costs. As in the case of the other alternatives, the total project cost also includes furnishings and equipment, moving, landscaping, and fees.

Converting a Building Constructed for Another Purpose

From time to time a library planning team may find that its community provides a fourth alternative—the conversion of a structure originally built for another purpose. Often, such buildings have been used as markets, department stores, banks, savings and loan institutions, or post offices. Sometimes this alternative provides the most economical method of gaining desired space in an attractive location or securing a sound structure for a library presently housed in a building with major deficiencies. As building costs continue to rise, this alternative may be particularly attractive, providing evaluation is based on realistic figures for purchase and remodeling.

The first step in pursuing this alternative is to determine whether or not such a building now exists or may become available in the near future. In a small community, the library administrator often is aware of most, if not all, possibilities. In larger

communities, enlist the aid of a reliable commercial realtor or other expert. Or, consult the local government official responsible for obtaining rights-of-way or evaluating property. A negative answer from such sources usually means this alternative holds little promise. However, a positive response will launch the library administrator on another survey with the following criteria in mind.

Usable Space

Any existing structure considered for conversion should meet the library's long-term space needs. In other words, does the gross area projected in the space needs assessment compare favorably with the gross area in the building under consideration?

Efficiency of Space

Do columns and load-bearing walls permit flexibility in the arrangement of collections, user accommodations, services, and library personnel? Most commercial and retail buildings are fairly open in concept and, therefore, have advantages for library use. If, on the other hand, the building uses load-bearing walls, bookstacks, readers, and personnel may be compelled to use an unsatisfactory layout. The building then becomes much less attractive as a solution. And, regardless of other merits, such buildings almost always result in higher operating costs.

Physical Condition of the Structure

The condition of the building also is an important consideration. It's wise to have the building analyzed by architects and engineers.

How much remodeling will be required? Some buildings may offer adequate space, but because their original purposes were quite different, lighting and mechanical equipment may be inadequate and need to be replaced. Restrooms also may pose a problem. In commercial buildings, restrooms often are located toward the rear of the building, where they may be far removed from supervision points, such as the circulation desk.

Is the structure sound? Will the floor withstand the 150 pounds per square foot weight of loaded book shelving? Are the ceilings tall enough to accommodate full-height bookstacks and still allow at least 12 to 18 inches between the top of the shelving unit and the ceiling for proper dispersal of light into stacks? Are the mechanical and electrical systems in good working order and adequate for the library's needs? Is electrical service available in areas likely to support automated equipment? Are there sufficient outlets where the circulation desk or technical services are likely to be? Are there existing provisions for data transmission, both within the structure and from the structure to other remote locations? Does the building meet the barrier-free access requirements for the handicapped?

The change of use may introduce more stringent code requirements. The Wisconsin building code states that "if the use of an existing building or structure is changed . . . and the requirements for the new use are more stringent than those for the previous use, the building or structure shall be made to comply with the requirements for the new use as provided in this code."⁶ For libraries, this becomes especially important regarding floor loading requirements. The code requirement that library floors withstand an average live load of 150 pounds per square foot is exceptional; few building types listed in the Wisconsin building code must meet so stringent a requirement. Under ILHR 50.03(3)(a), Wisconsin Administrative Code, any structure that does not comply with that requirement would need to have its floors reinforced—probably at considerable cost—before library bookstacks could be installed.

Accessibility

Buildings converted to new uses are subject to the same building codes that apply to handicapped accessibility on remodeled projects.⁷ In Wisconsin, if the conversion involves remodeling more than 50 percent of the gross area of the building, then the entire building must be accessible; if the conversion involves remodeling 25 percent to 50 percent of the gross area of the building, then only the portion being remodeled must comply with accessibility requirements; if the conversion involves remodeling less than 25 percent of the gross area of the building, then accessibility requirements only apply if the remodeling also involves an entrance, an exit, or a toilet facility. The costs for any required modifications can be an important consideration.

Site and Location

How well does the site meet the location criteria (which is discussed in Chapter 6)? In other words, is the building large enough, and is its location easily accessible to a majority of the library's users, present and future?

Future Expansion

Another issue to consider is how well the structure will meet both present and future needs for the library. If the total square footage is less than that projected for the 20-year period, critically examine both the building and the site in terms of suitability for a future addition or additions.

Interim Conditions

Because a single move would be involved with this alternative, the inconvenience to users and staff would be similar to that for a newly constructed library building.

Costs

The cost of this alternative includes the initial purchase price, expense of remodeling, and expansion, either now or in the future. Consult an architect for an estimate on the cost of remodeling.

Comparing the Alternatives

When considering two or more of the four alternatives, the library administrator must assemble the data as well as find a way to compare the advantages and disadvantages of each. Be careful not to make just a dollars and cents comparison. Data can be presented in various formats, including narrative reports or a comparative chart. A sample work sheet for comparing alternatives for an expanded building is in Appendix C.

Table 3-1 provides a case study applying the work sheet. The table illustrates one way to compare the four alternatives. In actual practice, such a table would be somewhat longer and more detailed.

In the case study, a typical Carnegie-era library, crowded conditions have prevailed for some time in spite of efforts to make do with existing space. A community study has

established the need for 10,625 net square feet of library space for the present, growing to 12,515 net square feet in ten years, and 14,735 net square feet in 20 years. The present building contains approximately 6,925 net square feet, or about 65 percent of present needs, and less than half the space to meet the library's projection of needs in 20 years.

The preliminary stages of the study have produced data on all four alternatives. Some remodeling is possible, which would add about 1,000 square feet. An addition also can be made, if two old residences are purchased on the north side of the building. These are currently valued at \$55,000. If a new library were to be built, the choice location would be on State Street, which provides adequate space and good access. The Community Center site at Park and Elm is free but inconvenient. A fourth alternative would be to purchase the recently vacated "Old Towne Market," also on State Street.

Note that in this hypothetical example, Alternative 2—to remodel and add on to the existing building—offers the cheapest immediate solution. In the long run, however, adequate facilities would cost much more under Alternative 2 than under either Alternative 3 or Alternative 4. The effort to analyze each alternative thoroughly will be repaid many times.

Disposing of the Old Library Building

After the library is moved into the new building, what is to be done with the old one? If severe structural problems exist, the probable solution is demolition. Before razing the building, seek assistance in determining the value of hardware, doors and windows, stained glass, paneling, and other salvageable items. In recent years, a growing market for such items has increased their worth considerably.

The residual value then lies with the site itself. Real estate professionals can provide value appraisals and suggest possible buyers. Any proceeds from the sale of the land should, of course, be used toward financing the new building. Sale of the land can be complicated by deed restrictions that commit the property to some form of public use. Carefully reading the title should reveal whether such conditions apply.

Former library buildings need not always be torn down simply because the library moves elsewhere. Such buildings lend themselves to many community and civic purposes, ranging from museums and art galleries to government offices and conference centers. Some library buildings that are structurally sound and require only limited renovation can be converted into attractive retail shops, boutiques, restaurants, and so on. Explore these possibilities fully before deciding to demolish the building.

The Historical Monument Syndrome

Library buildings in some communities face what could be considered the "Historical Monument Syndrome"—an almost irrational desire on the part of some segments of the public to retain certain buildings at all costs. Because library buildings often are among the oldest in a community, and perhaps because of childhood memories, residents sometimes single them out for preservation. Voicing the library's need for new and improved space can trigger an immediate public outcry aimed at saving the building. While there is no easy answer to this problem, several suggestions follow.

First, it's important to separate the concept of the building as a monument from that of a service-oriented structure that must provide access to complex information in a cost-effective manner. If the image of the library is allowed to persist as that of an ivy-covered building filled with musty stacks, old oak tables, and quiet nooks and crannies for snoozing and reading, then the historical monument appellation may well fit.

Table 3-1

Comparing Library Expansion Alternatives

Factor	Alternative 1: Remodel	Alternative 2: Remodel & add on	Alternative 3: New building	Alternative 4: Conversion of "Old Towne Market" building
<i>Physical condition</i>				
Structural	Major cracks in foundation & walls; roof must be replaced; floor weak under stacks.	Same as for 1; load-bearing wall where addition would go must be replaced.	New.	Adequate; leaks around skylights; new floor covering needed; redecorating required throughout.
Mechanical	Furnace must be replaced; cooking system also inadequate	Same as for 1; would have to replace entire system to service addition	New.	Capacity is estimated as less than $\frac{1}{4}$ of that required.
Plumbing	Frequent repairs needed; all fixtures need to be replaced.	Space in addition could be used for new rest-rooms; present rest-rooms could be converted to other uses.	New.	Number of fixtures inadequate; code requires twice as many.
Electrical	Outlets few in number & poorly located; occasional overloaded circuits; writing & switch panel at capacity.	Same as for 1; would need new panels w/ major rewiring needed for old building.	New.	Wiring adequate; will need numerous outlets, some in floor, new lighting needed.
<i>Site and location</i>	Current location meets basic criteria for accessibility	Same as for 1; site too small for addition unless two adjacent parcels are acquired on north side.	Site on State Street is preferable to community center site.	Good location on State St. w/ parking and exposure to vehicular & pedestrian traffic; adjacent to lots available for expansion.

Factor	Alternative 1: Remodel	Alternative 2: Remodel & add on	Alternative 3: New building	Alternative 4: Conversion of "Old Towne Market" building
<i>Usefulness of space</i>	Remodeling will add approx. 15% to the available space: Present: 6,925 sq. ft. Remodeled: 7,965 sq. ft. including basement & children's room/ new entrance will be needed with ramps to both levels; fixed walls upstairs restrict flexible use; extra staff will be required to supervise basement area.	Leave basement as is; build a 4,000 sq. ft. addition for children's room & adult reading room; w/ new entrance total space is 10,965 sq. ft.; existing building remains inflexible due to fixed walls; new area will be more flexible in use; ramp will be required between addition and exiting building.	Build 12,514 sq. ft. now and next 10 yrs; provide for addition to be built later for ultimate growth. All space designed for maximum utility.	Old Towne Market has approximately 10,000 sq. ft. of usable space; by acquiring adjacent land on east side a future wing of 5,000 sq. ft. might be possible; column spacing may limit flexibility of stack arrangement.
<i>Future expansion</i>	7,965 net sq. ft. available now with possible future addition of 3,000 net sq. ft. for a total of 10,965 net sq. ft.	10,965 new sq. ft.; further expansion considered impractical because of site limitation and design considerations.	Build 12,515 net sq. ft. to meet needs for next 19 yrs; add 2,500 sq. ft. wing; total 15,015 net sq. ft.	Present building contains 10,000 net sq. ft.; add 5,000 sq. ft. wing in 10 yrs; total net sq. ft. = 15,000
<i>Provisions for handicapped access</i>	Extensive remodeling required, including new restrooms, ramps to both entrances, using some of present library space.	Restrooms and entrance provided in new addition at ground level; ramp to old building is needed.	All provisions designed into construction.	All provisions designed into remodeling.
<i>Interim conditions</i>	Various areas will be closed from time to time w/ much shifting of collections and temporary work stations; possibility of closure when mechanical and electrical systems are replaced. Construction time: 5 mo. minimum.	Same as for 1; addition will be built while existing structure is remodeled. Construction time: 7 mo. minimum.	No interruption in service except for one week to move. Construction time: 10-12 mo. minimum.	No interruption of service except for moving. Construction time: 9 mo. minimum.

Factor	Alternative 1: Remodel	Alternative 2: Remodel & add on	Alternative 3: New building	Alternative 4: Conversion of "Old Towne Market" building
<i>Estimated costs</i>				
Site acquisition	None.	\$25,000	None if Community Center site is used; preferred site on State St. est @ \$75,000.	Old Towne Market priced at \$250,000; adjacent lot for future expansion = \$30,000 if bought now.
Remodeling	7,956 sq. ft. @ \$40.00 = \$318,420	6,925 sq. ft. @ \$40.00 = \$277,000	None.	10,000 sq. ft. @ \$0.00 = \$200,000
New construction	None.	3,000 sq. ft. @ \$65.00 = \$813,475.	12,515 sq. ft. @ \$65.00 = \$813,475.	None.
Total initial cost	\$318,420	\$497,000	\$888,475	\$480,000
Cost for subsequent expansion (to meet 20-year need)	New building of 16,000 sq. ft. @ \$100 = \$1,600,000 sq. ft.	New building of 16,000 sq. ft. @ \$100 = \$1,600,000	Addition of 2,500 sq. ft. @ \$100 = \$250,000	Addition of 5,000 sq. ft. @ \$100 = \$500,000
Total cost to meet 20-year program	\$19,184,420	\$2,097,000	\$1,063,475	\$980,000

Second, there's nothing wrong with housing the library in a historical monument if the community is willing to finance its rehabilitation as a modern library and provide for sufficient operating costs. However, few communities seem willing to accept these conditions.

Third, make an effort to clarify the true historical character of the library building. Was it designed by a noted architect? Does it contain some special structural or esthetic component worthy of preservation? Does its age have any real significance when compared with other older public buildings in the community? Does the building have an historical importance beyond the local community?

In addition to answering these questions objectively, explore alternative uses for the structure. As mentioned earlier, many such buildings can be converted at a fraction of the cost necessary for library remodeling into attractive museums, community centers, or commercial property. If used for commercial property, the building's return to the tax rolls would have a positive effect for years to come.

If there's any reason to believe the historical monument flag will be raised, it's imperative to incorporate a careful investigation of alternatives as part of the preliminary studies and part of the decision-making criteria.

Summary

Is it most effective for the library to pursue its long-term space needs through remodeling, expanding, building a new facility, or converting an existing structure into a new library?

The library administrator and board must consider each factor as rationally and fully as possible. When necessary, they should seek assistance from building officials, architects, and engineers so the accumulated data is accurate and authoritative. A clear, precise, and complete presentation of data is essential to good decision-making.

Endnotes

1. ILHR 51.01(105a), Wisconsin Administrative Code.
2. ILHR 50.03(2), Wisconsin Administrative Code.
3. ILHR 50.05, Wisconsin Administrative Code.
4. ILHR 52.04(6), Wisconsin Administrative Code. Table 52.04 and subparagraph (4) referred to in this passage describe the state's requirements for complete access.
5. The experience of other libraries in remodeling and expanding their buildings can be most helpful. For examples, see the case histories in *An Architectural Strategy for Change*, Raymond M. Holt, ed. Chicago: American Library Association, 1976.
6. ILHR 50.03(3)(a), Wisconsin Administrative Code.
7. ILHR 52.04(6)(e), Wisconsin Administrative Code.

The Library Building Program Statement

4

At the heart of nearly every successful library building project is a carefully prepared written statement known as a library building program statement. After completing the needs assessment and choosing the appropriate building alternative, the library administrator and board should turn their attention to this statement and familiarize themselves with the objectives and purpose of building programs.

This chapter looks at the scope and objectives of the building program statement, preparing and assembling the program statement, and the content of the building program statement.¹

Purpose of the Building Program Statement

Building projects that function best are those that adhere closely to the accepted scope and function of building program statements. Whether the project concerns remodeling, building an addition, or constructing a new building, the objectives and scope are the same.

Objectives of the Building Program Statement

The building program statement has been defined as "a practical description of the library's functional needs, based on its projected use and service goals."² When completed, the program statement is the architect's source book—the library's instructions to the architect, providing all the essential information required for designing the structure.

A second but equally important objective of the building program statement is to encourage the librarian, the library board, and the staff to identify problems and develop possible solutions. Should the number of service desks be increased or combined in some new fashion? Will the library's staff organization remain the same or will the new building require a general reorganization of offices and workrooms? Will the public catalog in the library continue to serve the entire library or will one or more additional catalogs be developed? How will automation affect services and routines?

To be effective, the building program statement must be constructed around the solutions to these kinds of questions, rather than simply providing a record of how things are done now. Before preparing the building program statement, think of objectives in terms of questions likely to arise after project completion. Some typical examples are provided in Chapter 14, which concerns postoccupancy evaluation. Appendixes D and E also provide help in preparing the program statement. Taking the time to anticipate and solve problems in the building program statement stage can avert shortcomings in the new facility.

The building program statement also serves as a checklist during the development of architectural plans. Planners can continually check the requirements established in the building program statement with what is actually provided in the plans. Obviously, there will be numerous differences, but these should represent intentional changes made in response to architectural development.

Scope of the Building Program Statement

A building program statement must outline the types of spaces the library will need to meet its service goals and how those spaces should interrelate for optimum effectiveness. The written building program covers every facet of the library, from its major collections and services to details on organizing procedures. Typically, the more detail and instructions you can give the architect, the more useful the building program statement will be.

At the very least, the building program statement should answer the following questions:

- What are the library's overall space needs?
- How should the space be broken down into departments or service areas?
- What activities will occur in each of those areas, and what furniture and equipment will they require?
- How should those areas relate with one another; what functions need to be near what other functions?

A variety of other topics may be appropriate to include in the statement. A summary of the service community and projections of future service targets can provide the background for the library's planning assumptions. This can be especially useful if the building program statement is used to justify the project to local government. Spelling out the library's goals and objectives can help identify priorities among service areas. For instance, if the library's goals emphasize children's services, this may indicate that children's services should be situated in a prime location near the entry. A description of the conditions in the current library may suggest some features an architect should avoid duplicating.

Building program statements also should deal with esthetics and building atmosphere. If some moderate noise can be tolerated at the circulation and public service desks, say so. If certain areas should be relatively noise-free, this, too, is important. Where decor merits special attention, as in a children's area, describe the atmosphere you want to create. This requires a clear concept in the mind of the program writer and a careful choice of words.

Preparing the Building Program Statement

Preparing the building program statement requires an understanding of the information that needs to be provided and how it can be presented to the greatest advantage. This brings up the question of who should write the program statement.

Who Should Prepare the Building Program Statement?

Data necessary for a building program statement ordinarily come from a variety of sources. However, the actual writing should be left to a single author, so the various sources of information can be better coordinated. This responsibility usually goes to the library administrator. In the small library, the library administrator is the person most likely to know and understand all the details involved in every library operation and their significance for the building. In larger libraries, the library administrator may assign various topics to staff members or committees for initial study and preparation of a draft statement. As the information is assembled into a single document, the library administrator will become aware of inconsistencies and problems that need further study.

The staff and board must realize that devising a building program statement is a long, involved, and often tedious process. It's a good idea not to rush the process, since the decisions made will affect the library for many years to come. If the building program statement must be developed quickly, the library administrator may have to delegate or postpone other tasks.

A library building consultant can relieve the librarian of some of the tasks of developing a building program statement. Although the consultant must go through the same data collection process, the actual writing usually takes less time because the consultant is able to devote full attention to this task and has expertise in developing building program statements.

Library Board and Community Involvement

Library buildings belong to the users, and it's important that the building program statement include input from them. While library board members may speak for the users, it can be helpful to have a small group of citizens, representing various ages and types of users, who can present their particular needs and interests.

Even though some of their recommendations may sometimes seem unusual, each should be given serious consideration. For instance, be prepared to have requests for food-dispensing machines and a place for readers to enjoy refreshments along with their reading materials. Others may ask that the library supply access to equipment such as electric typewriters, computer terminals, and audiovisual equipment. From the administrator's viewpoint, it's better to have such needs and expectations raised at this point than after the building is finished. In addition, consideration of user input will help reassure the public that its interests are valued and protected.

Refining the Needs Assessment for the Building Program Statement

Writing a building program statement requires assembling and analyzing a large quantity of data, a process that began with the needs assessment. This section discusses how to refine the planning assumptions made in the needs assessment into the outline of a building program statement.

The building program statement provides an objective record of the building project, so the count of materials to be housed, the number of seats required for users, and all other projections must be carefully prepared. Insert the formulas for determining data into the program and keep all work sheets for future reference. Have someone else check all figures to guard against potentially embarrassing mathematical errors. Where possible, convert service and space projections to simple tables with meaningful headings.

It's often helpful to review building program statements prepared by others to gain a sense of how to present this wealth of information in a manageable form. Many sample programs are available through the Division for Library Services; others may be available through your regional library system. In reading these programs, visualize the kind of building you would expect to emerge from the information presented. How successful has the writer been in conveying an image of how the library building will function? Keep in mind that the program statement is addressed primarily to the architect and is intended to convey the desired building with all its complexities.

Reaffirm Basic Planning Assumptions

When developing the building program statement, reaffirm the basic planning assumptions made during the initial space needs assessment. It's imperative that library staff, board members, and others share a common understanding of the role the library will play in the future.

After the consensus on the basic concepts of future library service has been reaffirmed, proceed with the projection of data. (Some of this data was examined already as part of the assessment process.) In essence, the procedure is as follows:

1. Confirm the community's anticipated characteristics at the target date and identify what collections, services, and programs the library might need to supply. (Reconsider the basic planning assumptions from the needs assessment, and modify them appropriately.)
2. Determine how the library can best be organized to provide the materials and services the community might need during the next 20 years, assuming a 20-year planning timetable. (Review this in light of any changes in demographic projections.)
3. Determine the growth that must occur to meet future community requirements at the target date. (Reaffirm this essential projection from the needs assessment.)
4. Translate probable use patterns into the types and numbers of user accommodations the library may expect to provide: seating; special equipment such as microforms, audio-visuals, computer terminals; and so on.
5. Construct an organizational chart of the positions and numbers of staff that will be required by the target date according to the space needs assessment. (Reexamine the initial estimate of staffing needs from the space needs assessment.)
6. Based on estimates of staff and library usage, describe the kinds of staff work areas needed and the number of people who probably will be working in various capacities.
7. Visualize the kinds of special resources and meeting areas the public is likely to need and expect the library to supply between now and the target date.
8. Identify relationships within and between all library functions and establish priorities for what should be next to what. These are known as relationship or adjacency studies and are essential to the successful building program statement.

Identify All Collections and Service Areas

Because the space needs assessment methodology described in Chapter 2 and in *Public Library Space Needs: A Planning Outline* is intended to be completed quickly, with data readily on hand, it glosses over some finer points. It focuses on only the most essential library services and simplifies the extensive range of services that most libraries offer. An important step in refining the space needs assessment into a building program statement is to identify collections and services that weren't addressed in the initial space needs assessment.³

For example, the space needs assessment described in Chapter 2 does not refer explicitly to videocassette collections or microform collections. Now would be the time to address those or any other collections and services not accounted for in the initial space needs assessment.

Classify Space into Functional Areas

The outline of functional areas or service departments is central to the building program statement. Next, reconsider the six types of space discussed in the space needs assessment. Those six types of space merely provide a convenient approach to discuss library floor space in a very early planning stage.

Libraries typically are not organized around those six types of space; rather, they are organized into separate departments, service areas, and collections directed toward specific audiences or purposes. The collection is not likely to be organized as a single unit within the library, but, subdivided into adult material and children's material, print and nonprint, circulating and noncirculating, and so on. Examine the functional organization of the present library. Based on experience and observation at neighboring libraries, determine if and how the organization of service areas should change.

For example, if the library's projected collection eventually will number 100,000 volumes, those 100,000 volumes may be assigned among adult and children's collections; perhaps 65,000 volumes for the adult collection and 35,000 volumes for the children's collection. Exact proportions for this assignment can take the current balance between adult and children's materials as a starting point. The library's service emphasis may suggest that the library board anticipates some changes in the balance between the adult and children's collections. For instance, a decision to emphasize the Preschooler's Door to Learning as part of Public Library Association's planning process may increase the proportion of the library's projected holdings of children's material. If children's material presently represents 27 percent of the total holdings, the library may set a target of 33 percent of the projected holdings.

Projected demographic changes also can suggest changes in the balance among parts of the library's collection. A library serving a community with a rapidly aging population may choose to increase the overall proportion of adult material in the collection. Circulation patterns and title and author/subject requests can affect these proportions as well. You might want to expand segments of the collection that have historically received heavier use. Also consider introducing new collections—one for local history, perhaps. In any case, subdivide the library's projected holdings according to *functional* categories.

In a similar manner, assign user seating to these functional areas. Assign seating according to adult and children's seating; according to the proportions associated with specific parts of the collection (reference, browsing, and so on); and according to types of seating (table, carrel, or lounge). Also assign staff work stations and special use space to functional areas.

If the formula multiplier was used in the initial space needs assessment to estimate special use space needs, you'll have to examine the required types of special use furnishings and assign those furnishings (with their respective space allocations) to the appropriate service areas.

Describe Specific Environments and Conditions for the Functional Areas

As you define the library's projected departments and service areas, you can determine their contents with greater precision and calculate the space needs of those areas more accurately.

One factor that will affect the amount of shelving the library will need is the portion of the collection in circulation. If at least 10 percent of a library's nonfiction collection is in circulation at any given time, the library can support a nonfiction collection of 50,000 volumes with shelf space for just 45,000 volumes.⁴ However, planners should be aware that this refinement in the planning assumptions reduces a margin of error that may be desirable in the projection of collection needs. In smaller libraries, the space saved by discounting shelf space for material in circulation usually does not save enough in construction cost to compensate for the loss of this margin of error.

The floor space required to house a particular number of volumes can vary depending on the specific shelving environment. The space needs assessment in Chapter 2 states that library collections can be housed at ten volumes per square foot. That is simply an average. The capacity of a given amount of floor space will vary from five volumes per

square foot to 30 volumes or more per square foot, depending on a variety of factors. The actual number of volumes that can be housed per square foot will depend on

- the height of the shelving unit and the number of shelves it can accommodate;
- the length of a typical shelf and how much the shelf will be used under ordinary circumstances (the "working capacity" of a shelf is normally between 65 percent and 80 percent of its full length);
- the type of material shelved or how many volumes can be housed per lineal foot of shelving (obviously, one can house more children's picture books than reference books per foot of shelving); and
- how wide the aisles are and how large the base shelf is, both factors determine how much floor space a shelving unit occupies.

Table 4-1 shows how many volumes can be housed in a standard, three-foot wide, single-faced shelving unit, given the number of shelves, the "working capacity" of the shelves, and the number of volumes that can be housed per lineal foot of shelving. You can use this number to determine how many shelving units you'll need to house a given collection, and that number of shelving units can be converted into a specific space need for that collection. For instance, one library may project a need for a fiction collection of 35,000 volumes. Planners may assume that an average of 5,000 volumes will be in circulation at any given time, so they will need shelving for 30,000 volumes. If they assume that the library will use full-height shelving (with seven three-foot shelves per unit), that the shelves will reach their working capacity when 75 percent filled, and that fiction can typically be housed at ten volumes per lineal foot (you could determine this by sampling and measuring the collection), Table 4-1 shows the planners that they will be able to house an average of 158 volumes per unit and will need 190 shelving units (or 95 double-faced units) to accommodate their fiction collection.

This projected number of shelving units required for a particular collection can be combined with an estimate of the number of square feet required per shelving unit to derive a total space need for that collection. The space needed by a standard single-faced shelving unit will vary depending on the depth of the shelves, the width of the aisle, and the frequency of cross-aisles. For most shelving environments, a good average is ten square feet per shelving unit. Table 4-2 summarizes floor space requirements per shelving section for many common bookstack configurations and dimensions.

Other parts of the collection may be housed in different ways that may affect the floor space each will require. Many libraries, for instance, use a double-box system for shelving compact discs, audio cassettes, and videocassettes and other formats that may be susceptible to theft. A dummy display copy of the item is displayed on open shelves, indicating that it is available for loan. A patron brings the display copy to a service desk and library where staff retrieve the circulating copy from storage. While this storage strategy often saves time and steps for the staff, it has the disadvantage of requiring additional floor space to house the same collection: space for the circulating copy and space for the display copy. On the other hand, housing these collections in locked display units may save floor space but usually increases staff time to serve the patron, especially if the display units are located far from a public service desk.

The capacity of traditional record bins varies depending on whether or not the library intends to use the lower shelf typically provided on those units. While the lower shelf doubles the capacity of a standard record browser, patrons routinely disregard the materials housed on that shelf. A collection of framed art prints can be displayed on one or more walls in the library, or they can be stored more compactly on special display panels. In any case, the specific shelving or storage environment planned for different parts of the collection will affect the space needed to house those collections.

■ Table 4-1

Shelving Capacities per Unit					
Number of Shelves	Volumes per lin. ft.	Capacity Factor			
		65%	70%	75%	80%
3	8	47	50	54	58
	10	59	63	68	72
	12	70	76	81	86
	14	82	88	95	101
	16	94	101	108	115
	18	105	113	122	130
5	8	78	84	90	96
	10	98	105	113	120
	12	117	126	135	144
	14	137	147	158	168
	16	156	168	180	192
	18	176	189	203	216
7	8	109	118	126	134
	10	137	147	158	168
	12	164	176	189	202
	14	191	206	221	235
	16	218	235	252	269
	18	246	265	284	302

In a similar way, you can determine specific allocations for user seating environments. While the initial space needs assessment recommends an allowance of 30 square feet per seat, the actual requirements depend on the seating environment. Planners usually recommend 25 square feet per seat for seating at tables, 30 square feet for seating at carrells, 35 square feet for seating at AV carrells, and up to 40 square feet per lounge seat. Seating scaled for children's use may be reduced proportionately (10 percent to 15 percent less space per chair).

As you distribute the initial assessment's user seating allocation into the library's functional areas, and as you identify the type of seating—table, carrell, lounge, and so on—you can derive a more accurate estimate of the space needed for seats in a particular area.

You also can examine staff work spaces more carefully to determine more specific space allocations, making adjustments for the types of special use furnishings in each department. A list of some representative space needs for specific special use furnishings is in Appendix B.

■ Table 4-2

Floor Space Requirements for Shelving Units			
Unit Base Width	Aisle Width	Floor Space in Sq. Ft.	
		Minimum	Maximum
10"	36"	7.70	8.75
	42"	8.53	9.69
	48"	9.35	10.63
12"	36"	8.25	9.38
	42"	9.08	10.31
	48"	9.90	11.25
15"	36"	9.08	10.31
	42"	9.90	11.25
	48"	10.73	12.19

Presenting Program Statement Information

Much of the information presented in the building program statement takes the form of narrative writing. However, use tables where they will help present numerical data. Alternately, you can include detailed data in an appendix.

When a particular concept is difficult to describe in words, try visualizing the concept and presenting it in a drawing. Use flow diagrams and relationship drawings freely to help the architect visualize what may seem very familiar to the librarian but complex and unintelligible to an outsider. Architects are well-versed in interpreting drawings and will readily grasp their meaning. Don't worry about artistry—just be sure your illustration accurately describes what you want to convey. If you feel your own art work is hopeless, perhaps a staff member or a library user with some skill in this area will convert your effort into better form.⁵ Always caption such illustrations and relate them to the text.

Program Statement Format

Prepare the building program statement with information presented in a logical sequence, including a table of contents and using numerous heads and subheads. A subject index will be a great asset if time is available, and the library administrator may want to add a brief bibliography directing the reader to additional sources. If you're going to reuse furniture, include lists of furniture and equipment that may require evaluation in an appendix. Tallies of collections also can go in an appendix.

Length of the Program Statement

By itself, the number of pages in the program is not a criteria of adequacy. Instead, the old college term paper dictum, "long enough to cover the subject," is most applicable. *Some people have success in using an outline form, but most programs suffer from this approach.* It's better to communicate at some length than to find that in an effort to be concise, important concepts and data were omitted or insufficiently presented. Usually, the more detail a program can provide, the more helpful it will be. On the other hand, be sure to keep a clear focus on the purpose of the program without rambling on. Generally, a fully documented program statement for a small project is likely to run 35 pages or more, while program statements for larger libraries will be several times longer.

Textual Explanation

Writing a building program statement requires careful selection of words and logical arrangement of ideas and information. Avoid using library jargon, and define all terms clearly. The architect may not be familiar with common library terms. For instance, to the librarian "circulation" means the activities associated with borrowing materials, but architects use the term to describe the flow of people. Try to have someone who is unfamiliar with the library's internal operations read a draft of the statement with a critical eye. If the text is clear to that person, chances are it will be to the architect.

One way to organize the statement is to describe each department of the library, and then answer the following questions for each area, as suggested by Finney.⁶

- How much usable square footage is required?
- What happens in this area?
- How does this area relate to other areas?
- How many staff members or library users will be housed or accommodated in this area?
- What are the environmental requirements?
- What are the utility requirements? Telephone? Water? Communications cable for terminals? Electrical outlets? Other?
- What furniture and equipment must be present in this area?
- What library materials will be housed in this area? In addition to print resources, make provision for any other nonprint collections.
- Are there special programs or items requiring built-in equipment and/or furnishings?
- What floor covering should the area have?
- Are there other special requirements? Lighting? Security? Humidity control? Visual supervision? Other?

Use a common format to describe individual service areas to help the librarian (or consultant) ensure that all the appropriate topics are addressed for each service area and to help the architect use the building program more effectively. One such format, developed by Richard Hall, is reproduced in Figure 4-1.⁷

The area description form in Figure 4-1 addresses many similar topics as recommended by Finney, including: functional activity description (what occurs in the area); spatial relationships (what other areas should be nearby); security and supervision; communications and electrical requirements; lighting requirements; acoustics and heating, ventilating, and air-conditioning (HVAC) requirements; furnishings and equipment; and so on. You can adapt this form or some variation of it for use in the building program statement.

■ Figure 4-1

Area Description Form*

Div	Space				Sq. Ft.
Occupancy	High	Ave.	Seats	Collections	
Public					
Staff					
Functional Activity Description:					
Spatial Relationships:					
Security & Supervision:					
Communications & Electrical:					
Illumination & Fenestration:					
Acoustics & HVAC:					
Space Finishes & Flexibility:					
Qty.	Furnishings & Equipment		Qty.	Furnishings & Equipment	

* Adapted from "Communicating with Graphics in the Library Building Program" by Richard B. Hall, in *Illinois Libraries* 67.9 (Fall 1985), p. 781.

Schematic Relationship Diagrams

Since the most vital information in the building program statement concerns the way the various areas should relate to one another, it's important to describe these relationships clearly. Schematic relationship diagrams show such spatial relationships, and you can master this presentation technique fairly quickly.

The most common schematic relationship drawing consists of circles or bubbles that overlap or are connected by a series of lines. Each circle represents a proposed department or service area in the library. The importance of a relationship between any two departments is shown by the degree to which the respective bubbles overlap or by a line connecting the two bubbles. Applications of these two techniques are shown in Figures 4-2, 4-3, and 4-4. Use bubble diagrams such as these throughout the program statement.

Besides giving the architect a wealth of information uncluttered by assumed dimensions and walls, relationship drawings also prompt library staff to make decisions on how things should relate and operate.

Figures 4-2 and 4-3 are bubble diagrams that use the proximity of the respective circles to demonstrate the importance of adjacency. This convention holds that where two bubbles don't touch, proximity is not necessary between the areas in question; where two bubbles touch, proximity is important; where they overlap, proximity is crucial.

Figure 4-2 shows the basic relationships that might apply to major library areas. Although a seemingly simple diagram, the figure presents some very important decisions. For instance, the diagram tells the architect that the building consists of three basic areas: public services (I), support services (II), and storage (III). Certain fundamental relationships apply within each area. For instance, public access (IA) to the library is convenient from both Elm Street and the public parking lot. Inside the building entrance, patrons enter the circulation desk area (IB) and find the adult collections and services (IC) conveniently to one side, and children's services (ID) to the other side.

In support services (II), a second entrance (IIG) is to be created for delivery and staff. The technical services workroom (IIB) will be on the right and the custodian's workroom and storage area (IIF) on the left. The staff lounge (IIE) will be located beyond, as will the librarian's office (IIC), and the public services staff workroom (IID). The overlapping of circles IIC and IID with the larger circle I indicates a direct relationship between these offices and the public services area. Storage (III) is shown as a separate major element but one closely related to both public services (I) and support services (II). Subsequent parts of the building program statement can then expand on each element to fully develop its implications.

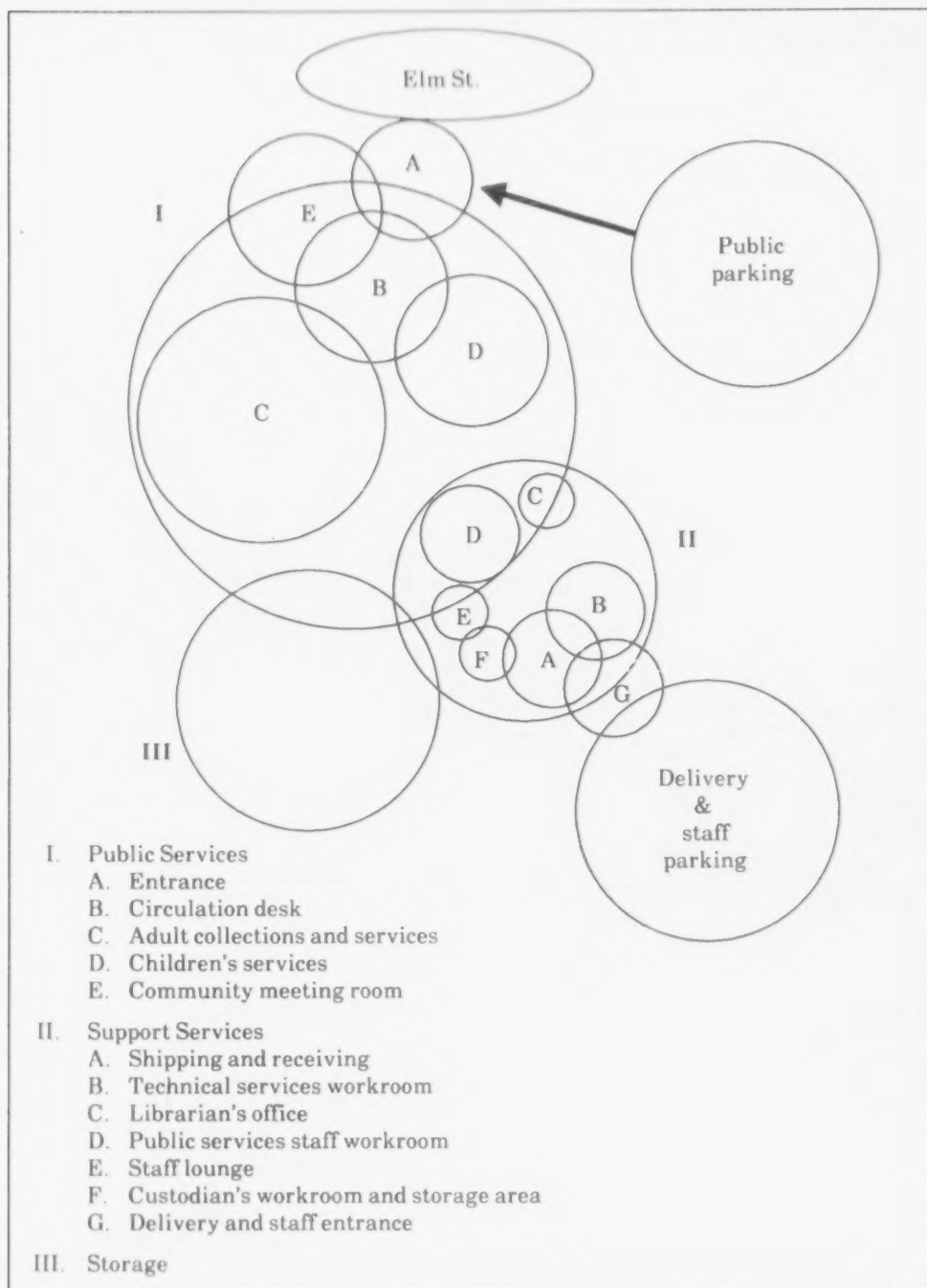
The internal layout of this hypothetical library begins to emerge in Figure 4-3. Figure 4-3 uses the same conventions as the previous illustration to document the key interrelationships in the adult services department; the adult services department in this illustration corresponds to circle IC in Figure 4-2. Figure 4-3 reiterates that the adult services area (IC) should be near the circulation desk (IB); people entering and leaving this department must pass through the circulation area. It also reiterates the proximity of this department with the meeting room facilities (IE).

Within the adult services area, Figure 4-3 shows that a reference desk (IC1) should be near the entry to the department, close to the circulation desk. The square in this diagram represents a public service desk; similar symbols can be developed as needed. The circulation desk is to be closely related to the catalog and indexes (IC2). These, in turn, are tied to the reference collection (IC3).

Anyone entering the adult services area will find the "popular collection" (IC4) nearby; beyond is the circulating collection (IC5). User seating (IC6) is shown as central to the popular collection, the circulating collection, and the reference collection. Information in the program statement would further explain these relationships and describe the kind of user seating needed and other requirements for each area.

■ Figure 4-2

Schematic Relationships of Major Library Areas



Key Interrelationships for the Adult Services Area

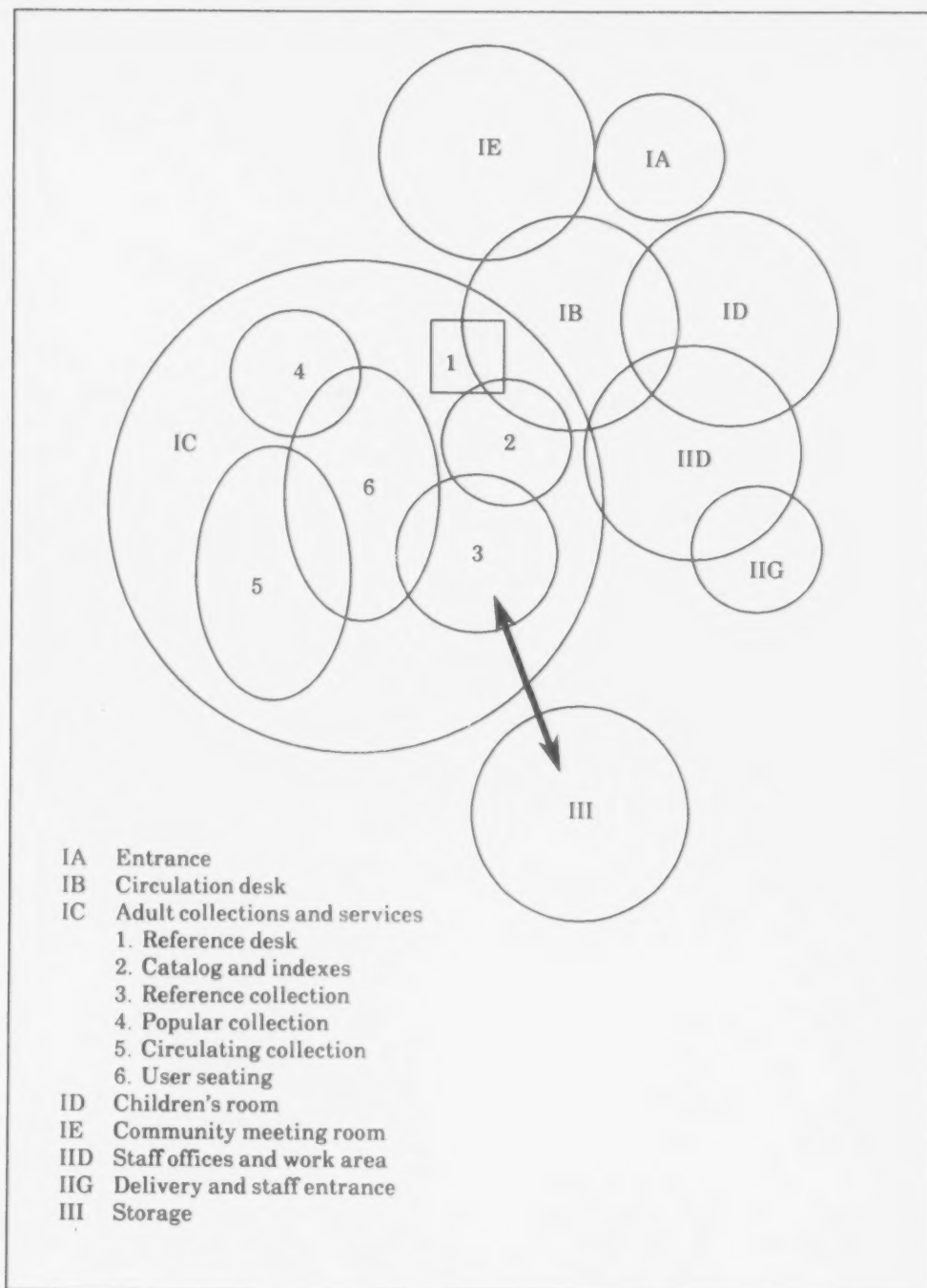
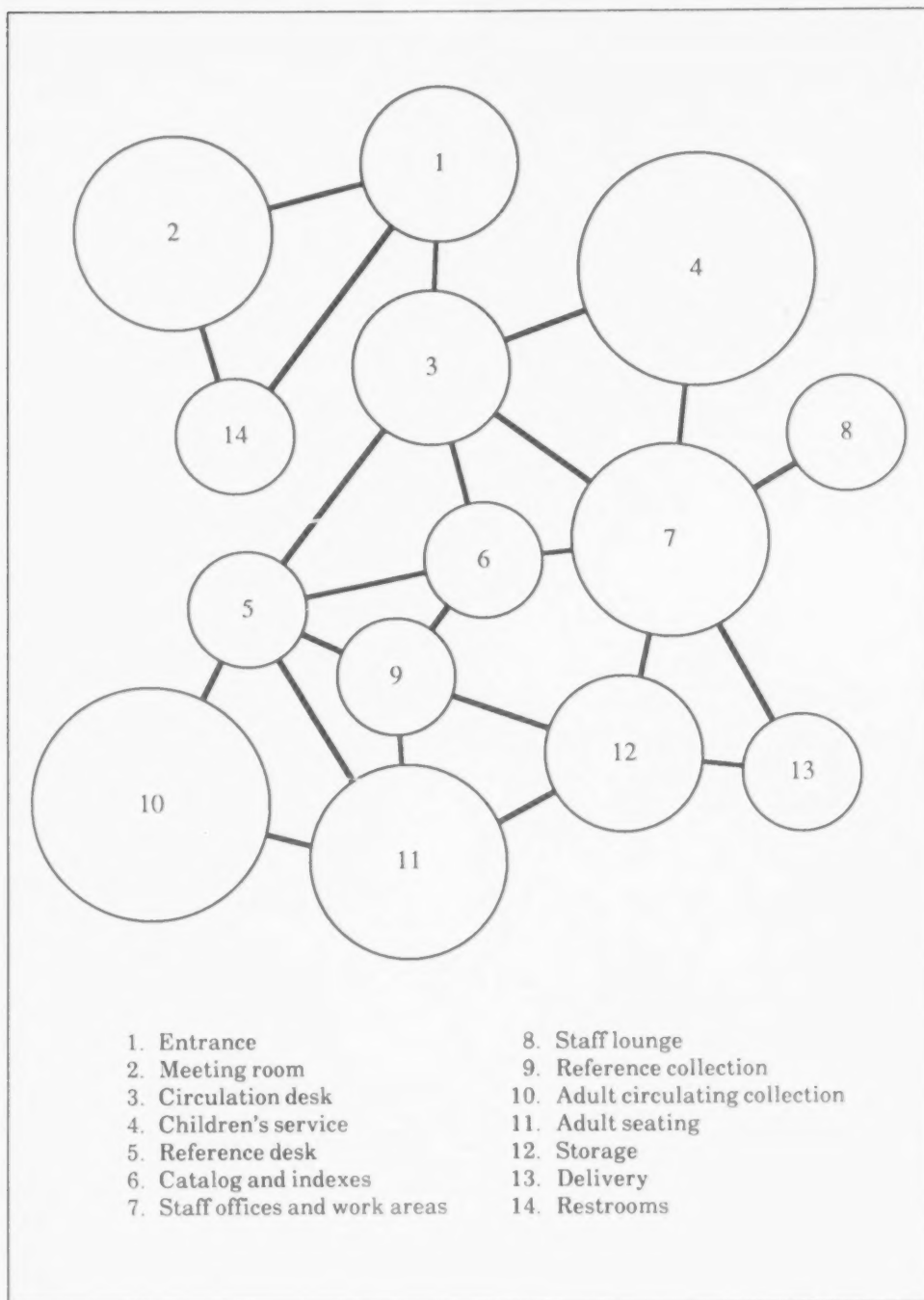


Figure 4-4

Interrelationships among Library Service Areas



The diagram also shows a close relationship between staff offices and work areas (IID) and adult services (IC). By virtue of the double arrow, the architect must assume there is a specific tie between the reference collection (IC3) and storage (III).

Relationships similar to those shown in Figure 4-2 are shown in a different manner in Figure 4-4. In this type of bubble diagram, the circles again represent departments or service areas, but the relationship between any two areas is shown by a line connecting them. Figure 4-4 shows the most important interrelationships among library areas. This diagram indicates that the meeting room (2) is accessible only from the entrance and that those entering either the children's room (4) or the adult services room (10) must pass by the circulation desk. The reference desk (5) is related to the circulation desk (3), the catalog and indexes (6), reference books (9), adult circulating collection (10), and adult seating (11). By following the lines, the relationships of each area to the others can be traced similarly.

In a variation of this technique, you might show the more important relationships with heavier unbroken lines indicating priorities on how things should be interconnected. The heavier the line, the more important proximity is. Thus, the lines between the reference desk (5) and the catalog and reference books might be shown as a heavy solid line indicating a major relationship, while a narrow, or a dashed line could indicate a lesser relationship with the adult circulating collections and adult seating. Of course, while this provides more information, it requires more time to develop.

Relationship diagrams also can show unimportant or undesirable relationships. Negative or "nonrelationships" are as important as interrelationships. Thus, in Figure 4-4 the fact that circles representing the meeting room (2) and adult services (5, 6, 9, and so on) do not touch indicates that these areas are *not* related and can be separated—even permitting the meeting room to be placed on another level, for instance, so long as there is a more direct connection with the circulation area.

Satisfactory relationship drawings depend on firm decisions about how the library is to function. There is no room for equivocation. While they don't replace text, such drawings provide an easily understood outline of the various parts of the building. In some instances, the library administrator may not be able to resolve all the conflicts in the intricate relationships. This should be clearly stated in the text so solutions can be found during the early stages of architectural design.

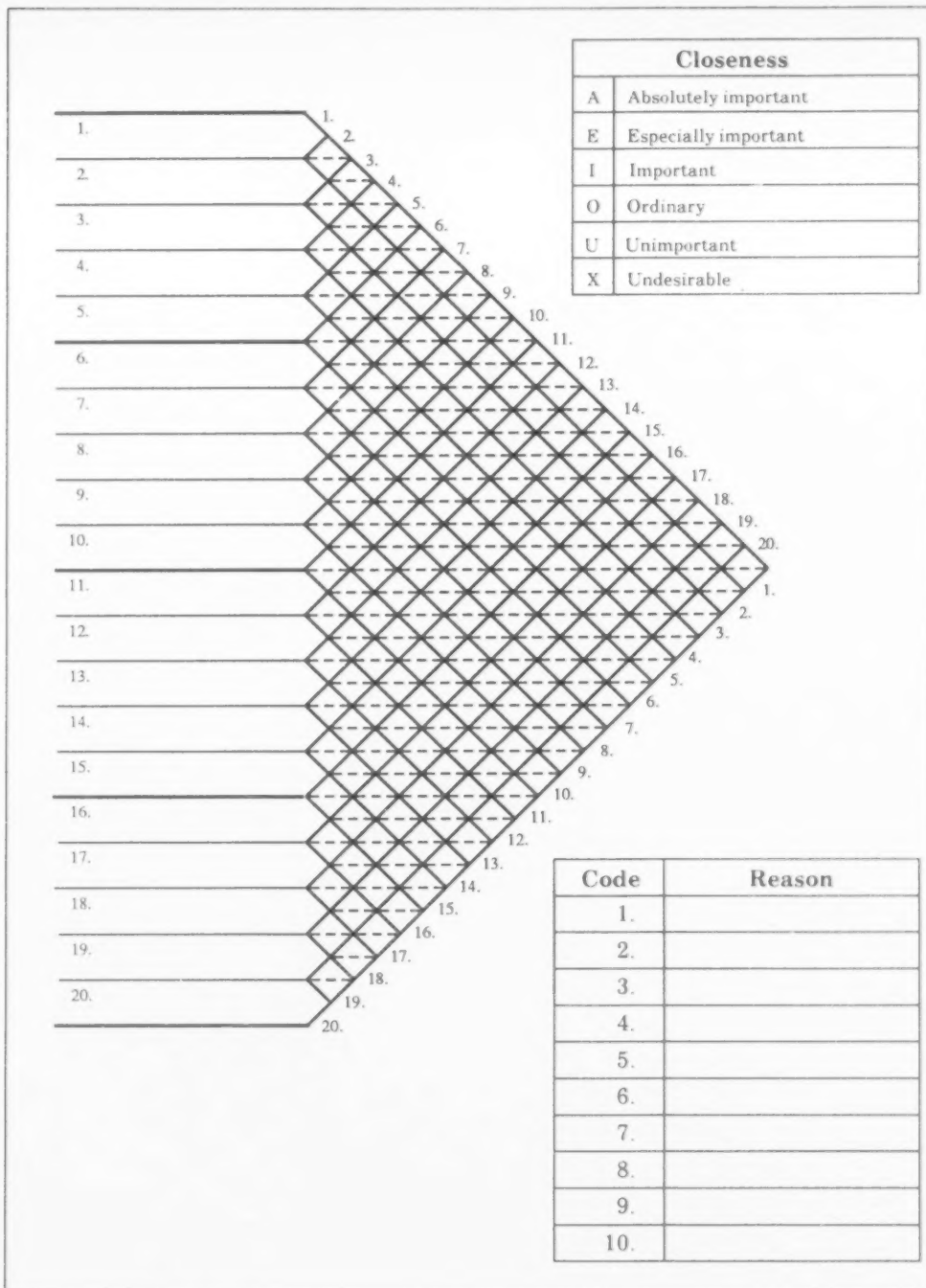
Muther Relationship Charts

Another important aid for representing spatial interrelationships to an architect is found in Muther relationship charts. This system was developed by Richard Muther and John D. Wheeler for use in industrial design, but it has been adapted for use in other facilities planning environments. Muther charts take the form of a grid that lists and correlates each of the library's identified service areas (see Figure 4-5). Any cell in the grid represents the relationship between two service areas. In each cell, planners can identify the importance of proximity between the two service areas in question, from absolutely important to undesirable:

- A = Absolutely important
- E = Especially important
- I = Important
- O = Ordinary
- U = Unimportant
- X = Undesirable
- / = Not applicable

Figure 4-5

Muther Relationship Chart



Adapted from Richard Muther and John D. Wheeler, *Simplified Systematic Layout Planning*, Kansas City, MO: Management and Industrial Research Publications, 1977.

Planners then identify a reason for the interrelationship by way of a user defined code. Other reasons may be substituted or added to suit local conditions and requirements, but try not to use more than ten general reasons for proximity, or the chart may become too complicated to use. Some sample codes may include the following:

- 1 = Security and control
- 2 = Relation of staff to equipment
- 3 = Requires special utilities service
- 4 = Noise
- 5 = Relation of staff to one another
- 6 = Accessibility of the user

Figure 4-6 shows part of a sample Muther chart. In the shaded diamond, the upper part indicates the necessary closeness between the two service areas in question—the entry/ vestibule and the catalog—while the lower part of the diamond indicates the reason for the desired proximity. When the reason is unimportant, you may leave the lower portion of the diamond blank. This sample chart shows that the relationship between the circulation desk and the catalog is absolutely important, while the relationship between the circulation desk and the adult nonfiction collection is important.

Flow Charts

In some areas of the program, flow charts that diagram the progress of certain operations can be helpful in clarifying and expanding on the text. These are especially useful where routines are somewhat involved or unfamiliar and require extensive description, as in the case of circulation work or technical processes. The flow diagram presented in Figure 4-7 shows how major components of a technical services operation might work. (Note that this is not presented as an ideal solution, but rather as an example one library used to explain its own concept.)

Still another form of flow chart uses diagrammatic floor layout to illustrate the arrangement of people or order of work. Here, it will be advisable to use a 1/8"-scale furniture template. Templates are available at stores selling drafting supplies. Computer-assisted drawing programs also may be used to develop such diagrams. Figure 4-8 shows a diagrammatic arrangement of one library's shipping and receiving area. The hazard of such drawings is that the staff members might begin to develop preconceived notions of how the space should look rather than how it should work, and might begin to intrude on the architect's design role.

Content of the Building Program Statement

Begin the building program statement with a well-defined description of the library's objectives, its place in the community, the nature of its users, and other data that will set the stage. If you've chosen the site for the library, describe it. Next, the library building program statement should address each part of the building, beginning with the entrance. Refer to the purpose of each section of the library, along with pertinent data on the collections, staffing, and operations. Public desks may deserve special treatment to ensure full understanding of the tasks performed there and the need for electrical outlets and special equipment. Staff work areas also merit separate attention. A sample outline of a building program statement is in Appendix D.

Figure 4-6

Muther Relationship Chart Example

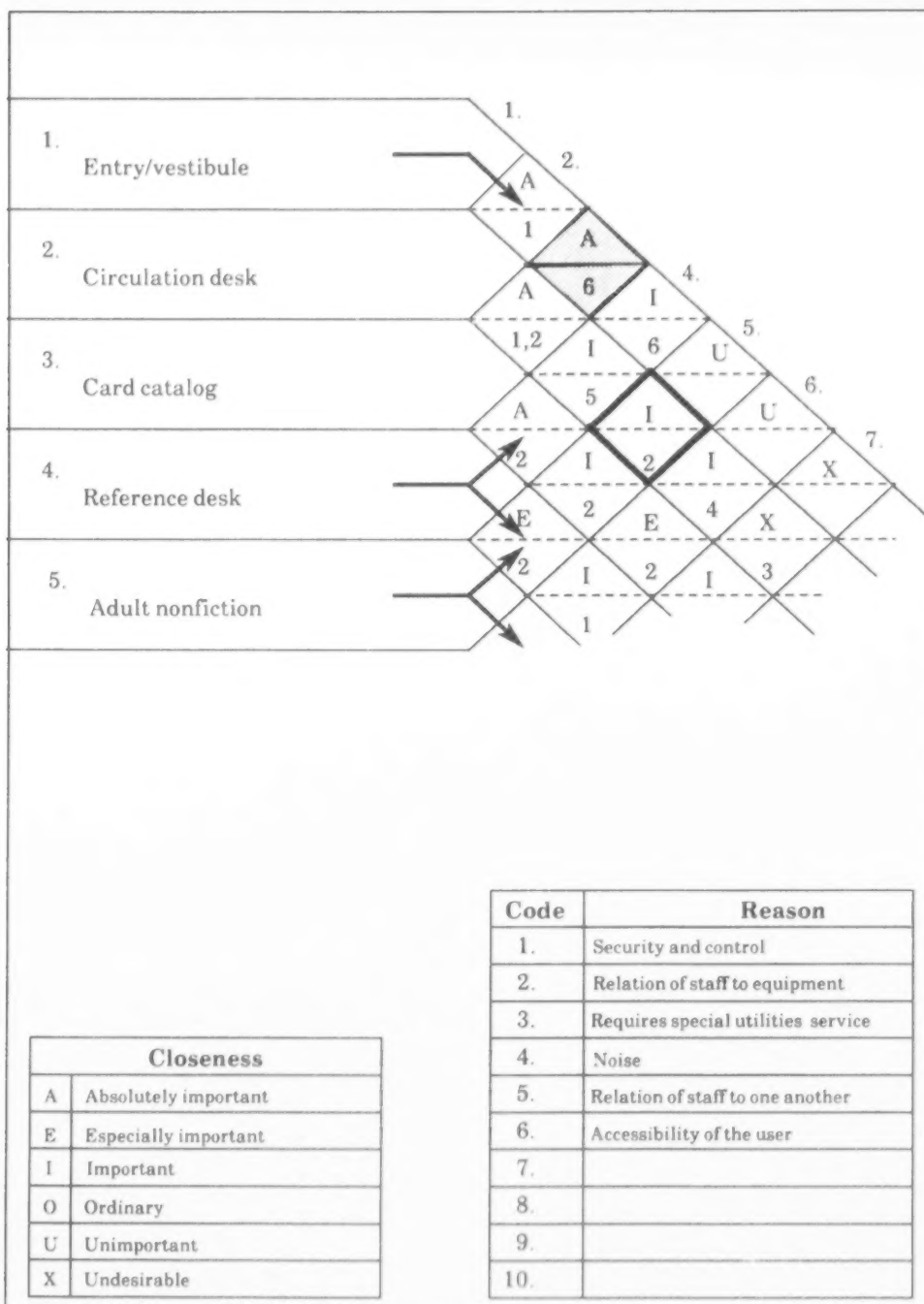
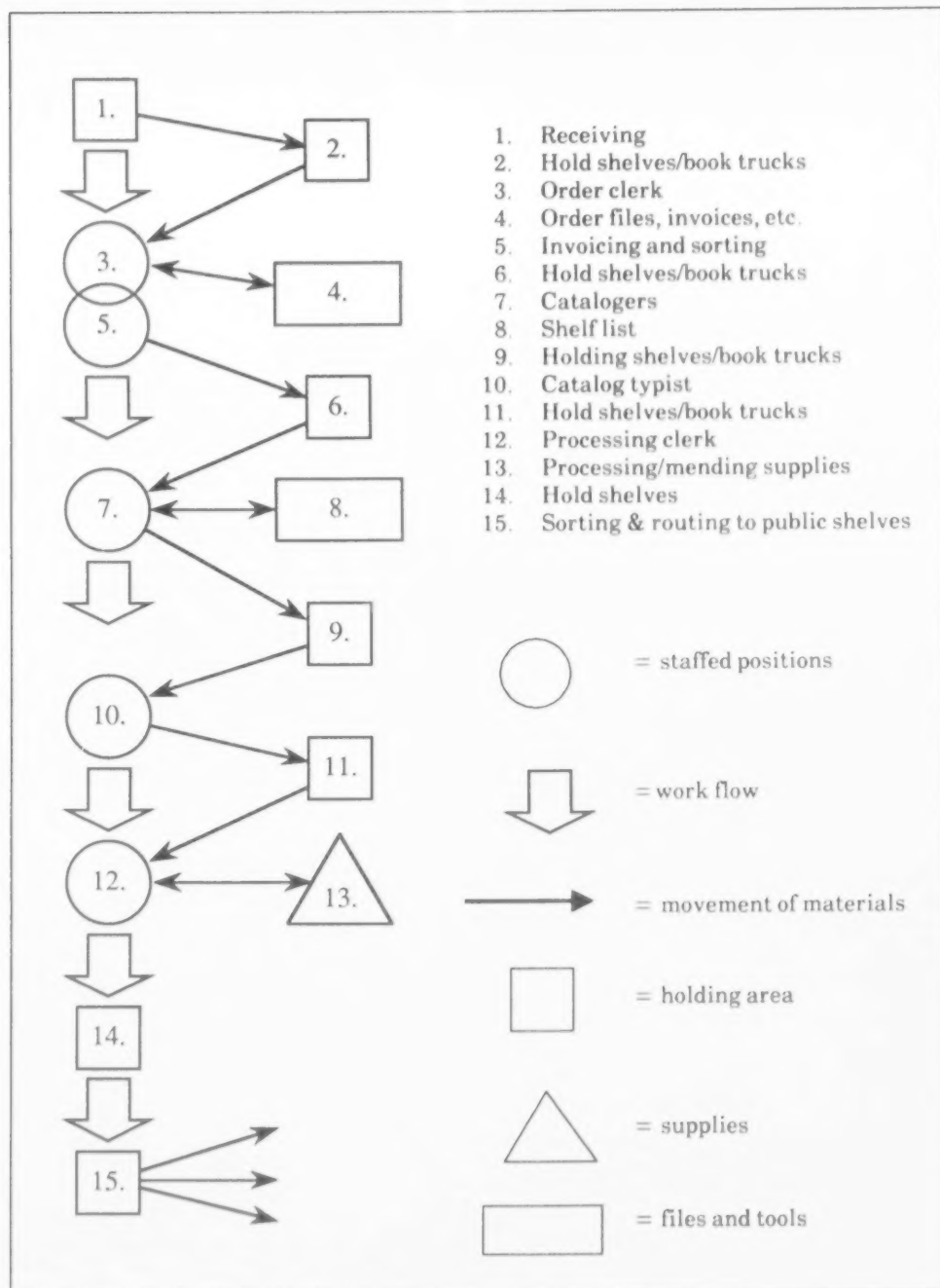


Figure 4-7

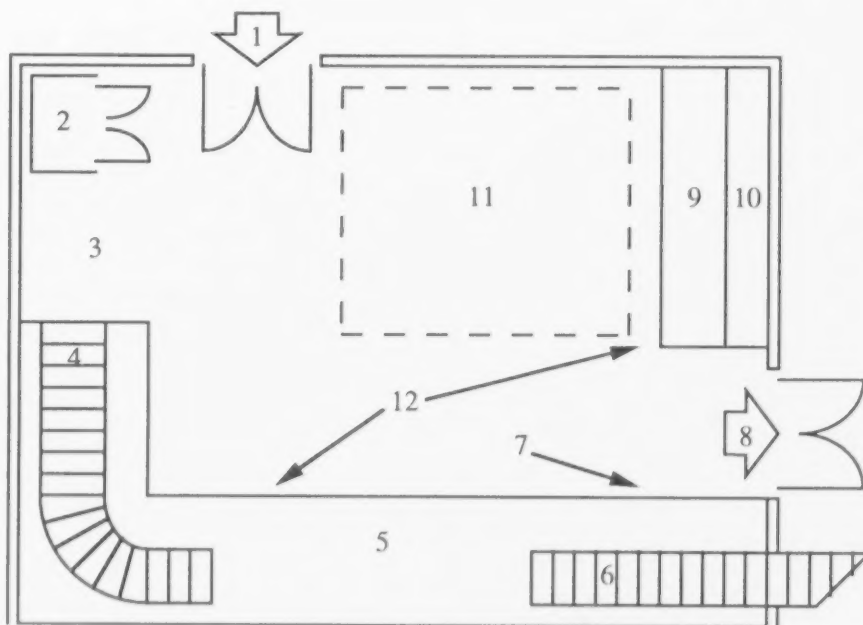
Sample Flow Chart of the Path of Materials through a Cataloging Department



■ Figure 4-8

Sample Diagrammatic Floor Layout of a Shipping and Receiving Area

1. Entrance from delivery area
2. Closet for hand trucks
3. Temporary storage of cartons
4. Stationary roller conveyor
5. Unpackaging work area
6. Roller conveyor to technical services
7. Trash compactor (below the counter)
8. Entrance to technical services
9. Mail sorting and packaging counter
10. Mail slots (above the counter)
11. Temporary storage of materials to be delivered to branches
12. Storage (above and below the counters)



Summarize and total the space estimates for each area. Explain the formula you used to get the space estimates—for instance, "based on ten volumes per square foot," or "allowed 125 square feet per staff member." This will save time later on, since people usually question the basis for such estimates. All work sheets should be indexed carefully and filed for reference. When trying to decide whether to include a given point, it's better to put it into the text—more often than not it will prove helpful.

The completed building program statement should provide a detailed profile of the library, written in language the architect can interpret accurately. In some cases, it may be necessary to describe alternative methods of operation where a choice can't be made due to conditions beyond immediate control. However, too many alternatives will lead to confusion and unnecessary work on the part of all concerned, so keep them to a minimum.

One word of caution on content. It's best not to supply the architect with specific floor plans. While it may seem clear how the library should be planned or how a particular area should be laid out, remember that this is the architect's job. The architect will bring to a project training in design and familiarity with building codes that may suggest solutions the rest of the planning team could not anticipate. There will be ample opportunity to examine the architect's work and request revision where needed until the results suit the library's needs.

The Introductory Statement

An introductory statement should cover the following areas:

- nature and size of the community to be served
- demographic characteristics—past, present, and projected
- a brief history of the library in the community
- the present library building's history, especially if the project involves remodeling or expanding the structure
- planning concepts behind the building program such as dynamic programming to reach all elements of the community, a multimedia approach to library collections and services, or an orientation toward library systems and network participation
- characteristics of the desired atmosphere
- a summary of the library's functions, services, collections, and special activities

Summary Statement of the Resources to Be Housed in the Library

A summary statement of the resources the library must house and the distribution of those resources provides the architect with a helpful overview. Make the summary concise and note that the text will expand on these figures later.

Collections

The collections summary should include print and nonprint materials. It should include the number of volumes to be housed initially, plus projections for the eventual shelving capacities (for planning purposes, sometimes this is broken out in ten- and 20-year increments). Depending on its size, the collection can be divided into several smaller units.

For even the smallest public library, it's appropriate to summarize initial and projected holdings for adult, children's, and audiovisual material. Within these categories, you can further subdivide the collections. Among other types of adult material you might find: reference; circulating fiction; circulating nonfiction; current periodicals and periodical backfiles; documents and pamphlets; special collections (often local history and

genealogy collections); microforms (the number of rolls and/or fiche); films; videocassettes; recordings (phonodisc, tape, compact disc); framed art prints; and posters. The children's department and the young adult department also may have some of the same subdivisions. The degree of detail provided in this summary will depend on the size of the respective collections.

Number of Readers to Be Seated

Summarize reader seating, describing the allocations among types of users (adult, children, young adult) and types of seating environments (tables, carrels, and lounge). It's sometimes useful to include in the summary the departments where these various settings will be located.

Special Features for Groups

The summary should highlight the types of meeting spaces the library plans to provide. Note general meeting rooms and smaller conference rooms as well as separate areas for children's programming. Specify the projected seating capacity of each room or area.

General Nature and Purpose of Staff Work Areas

Note essential staff work areas such as circulation, public service stations (for adult and children's services, both on-the-floor desks and separate offices), administrative offices, extension services, technical services, and delivery.

General Design Considerations

Local planners may express a variety of issues and preferences that will affect the design of the building. These often include topics such as code requirements; the site; access requirements; parking needs; interior design and furniture selection; requirements for automation; lighting; maintenance, and security; design features observed on tours of other libraries; and so on.

The following topics do not comprise a comprehensive list, and the content of these general design considerations may be limited only by the time available to those developing the program and the level of detail chosen for the program.⁸ These topics should be discussed in the building program statement in as much detail as is appropriate.

Code Requirements

The building program statement should acknowledge any applicable codes that carry design implications. In Wisconsin, the Department of Industry, Labor and Human Relations issues the general building code as well as electrical and plumbing codes for the state. Other states may use different codes—the Uniform Building Code and the BOCA Code were cited in Chapter 2. In some states, individual municipalities enact their own building codes.

Other codes also may affect building planning, such as local zoning codes, accessibility codes, and historic preservation regulations.

Site Considerations

When describing the library site in the building program statement, include information such as the orientation of the site—especially as it may relate to daylighting. Include a brief description of the surrounding environment. Building design is likely to be somewhat different if the library is located on a corner in the residential district as compared to a downtown retail area. If there are important vistas to be preserved, note their relationship to the site. Similarly, if there are structures, busy highways, railroads, or natural objects that tend to be eyesores, the building program statement should mention them. Pay particular attention to any local historical importance attached to the site.

Note any known shortcomings or peculiarities about the site. The architect will do a thorough job exploring the property, analyzing soil test data and so on, but you should include any factual data that may affect design. For instance, knowing that a storm drain or sewer line runs diagonally across the property may indicate that any attempt to build a basement will be very costly.

Still other conditions relating to the site pertain to weather. If, for any reason, you believe the weather will affect the library location somewhat differently than the rest of the community, describe these variances. Winds, for instance, may blow stronger in some areas of the community than in others, hurling snow in the winter and dust in the summer. This may not rule out the site, but it does indicate a special problem for the architect to resolve. Drainage following sudden thaws or heavy rains is another factor for the architect to consider.

Access Requirements

Describe basic handicapped accessibility requirements, referring to the appropriate codes. The Wisconsin building code includes specific requirements for accessibility. If you seek federal funding, the design also will have to comply with the appropriate federal code. Where the state and federal codes are in conflict, the more stringent of the two usually prevails.⁹

Parking Needs

Parking requirements most likely will be governed by local zoning ordinances. Libraries, however, are a special use, and many local zoning codes don't provide specific recommendations for libraries. It's been said that it's better to build a \$2-million parking lot next to a \$20,000 building than the other way around. Given our continuing reliance on the automobile, there's a certain truth to that. At a minimum, spell out the municipality's requirements for on-site parking in the building program. Alternate formulas and recommendations regarding on-site or adjacent parking also may be discussed here (refer to Chapter 6).

Interior Design and Furniture Selection

The building program statement should call attention to the need for coordinating interior design and furniture selection with the design of the structure. The public is profoundly affected by the building environment, which includes architectural details and the colors, textures, and arrangement of walls, floors, furniture, and equipment. Interior design also will be a major determinant in the continuing maintenance costs of the building.

When special pieces of furniture or casework are involved, describe them. The program also should call attention to areas that require particular types of floor or wall coverings or other treatment. It's important to indicate the need for arranging furniture

to promote the smooth flow of traffic through the library and to maximize supervision. For instance, a card catalog or cluster of carrels should not obstruct visual supervision of a lounge or table-and-chair area.

The building program statement also can describe the quality of furniture desired in the building. If the library has always had light-colored furniture and the planning team desires a change to dark finish, mention it, since it may have implications for design concepts.

Throughout the program statement, call attention to the need for graphics and signs. For instance, if the library is to have a special section of shelving devoted to new books, it's appropriate to request signs to highlight the display.

While the interior design of the library, including the layout and selection of furnishings, should be left to experts, the building program statement can establish the general tone as well as point out specific requirements.

Automation Requirements

The special environment required by automated equipment is the subject of several books.¹⁰ If the library presently uses automated equipment—for circulation, or database searching, or general office applications—the implications of this equipment on library design should be noted in the building program.

At the very least, automated equipment affects power distribution in the library. Computers and audiovisual equipment have created a proliferation of plugs and wires with which libraries of all sizes must contend. In addition to suffering from an inadequate number of outlets, most outlets in existing libraries seem to be in the wrong place. Current building techniques offer a variety of approaches to provide flexibility to meet changing electrical service needs. Some automated equipment also requires separate, dedicated circuits for safe operation.

Automated equipment may impose data transmission requirements on the design of an expanded library. Terminals installed as part of a local area network (LAN) or a shared circulation system consortium must be able to communicate with the mainframe or host computer. Mainframe computers require specific temperature and humidity controls and a secure operating environment (e.g., a separate room). Lighting and placement of terminals to reduce glare on screens becomes a concern, as does static control.

If the library presently uses automated equipment, or anticipates introducing automated equipment in the future, the manufacturers' recommendations regarding optimum operating conditions should be reviewed. Failure to maintain the proper environment often will void the warranties extended by the vendor, especially on larger mini- and mainframe computers.

Lighting

It's a challenge to design effective lighting for libraries. As with the requirements of automated systems, there are a number of sources that describe different aspects of lighting the library environment—from the advantages and disadvantages of different types of lamps and fixtures to recommended lighting levels.¹¹ Review these sources, note lighting conditions in the present library and in surrounding libraries, and include any appropriate instructions in the building program statement.

Maintenance

The building program statement should call for adequate space for maintenance requirements. This includes custodial workrooms and storage areas properly equipped with sinks, mop racks, work benches, and storage cupboards. A work area opening outside is necessary if the custodian is to maintain the landscaping and walks, with floor

space sufficient to house garden tools, lawn mowers, and snow plows. If the custodian will make minor repairs to equipment and furniture, a small, properly equipped workshop is necessary. Where the building program statement discusses wall and floor finishes, address the maintenance aspect of these materials as well, and remember to request adequate power outlets for custodial cleaning equipment.

Security

The building program statement should call attention to the need to secure the library building against normal risks, including fire, flood, vandalism, and breaking and entering. If the local crime rate is high, note areas of particular weakness where the installation of electronic surveillance equipment might be useful. This is especially true for fire detection. The program should call for vandal-resistant locks and hardware. Use emergency security lighting, and incorporate exterior lighting into the landscaping to illuminate vulnerable entrances and windows.

If the library has a collection security system or plans to get one, include a full description in the program. The system's electrical requirements and the critical dimensions for locating the various components are important to the architect. Manufacturers of such equipment will gladly furnish full descriptions and detailed specification requirements.

Understanding security is essential in order to be aware of potential trouble spots and to evaluate any solutions. Before preparing this part of the building program, the library administrator who is unacquainted with current security practices should talk with local police and fire officials or others engaged in security occupations and read some of the literature.¹²

Special Requirements for a Remodeling or Building Conversion Program

Building program statements prepared for remodeling, expanding, or converting an existing structure require additional information. In this case, we're dealing with a particular structure with specific dimensions. Supply these in the program statement wherever applicable. If the building is to be expanded, consider how the new addition can best relate to the present interior in terms of relationships and functions. The architect also will give this serious consideration. If several alternatives exist, it's important that the building program statement include the consequences of placing the addition at various points. Diagrams can reveal the advantages or disadvantages of the various choices. Given this information, the architect will make additional studies and determine the most feasible arrangement. If engineering studies have been made during the needs assessment period, include them as appendixes and refer to them in the text where appropriate.

Presenting Detailed Data

Following the introduction and the discussion of general design considerations, each of the areas within the library should be carefully described as you want it to function. Describe the atmosphere you want to achieve, anticipated traffic flow, user loads at peak hours, and the need for communications devices for each section. Start with the entrance of the library and move through each of the public areas, followed by the staff work areas, and so on. Keep in mind the list of topics suggested by Finney and Hall for each of these functional areas, mentioned earlier in this chapter. Consider using a consistent format for each of the service areas described in order to ensure thoroughness. A detailed outline

of functions and service areas that may be covered in the building program statement is in Appendix D.

Concluding the Building Program Statement

Conclude the building program statement with a summary chapter. Here, you can reiterate briefly the basic points made during the program statement. Even more important is the inclusion of one or more summary tables. One of these tables should assemble the total square footage figures recommended for the various parts of the library. This will provide a total estimated space requirement for the entire building project. Supplementary tables can summarize the space requirements for collections, users, staff, group use, and other major elements.

Summary

A building program statement is essential for every building project, whether it concerns remodeling, an addition, or a new structure.

The building program statement should describe the library needs of the community as they relate to the building project. After addressing general matters, the program can describe library requirements beginning at the entrance and proceeding through the public areas to staff workrooms and offices. The statement can end with a discussion of miscellaneous items such as maintenance, security, interior design, and furnishings.

There is no short cut to producing a good building program statement. It requires many hours of gathering data, analyzing it in terms of future library operations, making decisions, and then presenting the information in a useful form. Anything not covered in the building program statement may well be left out of the building itself.

Endnotes

1. Some titles on this subject include the following:

Finney, Lance. "The Library Building Program: Key to Success." In *Public Libraries* 23.3 (Fall 1984), pp. 79-82.

Hall, Richard B. "Communicating with Graphics in the Library Building Program." In *Illinois Libraries* 67.9 (November 1985), pp. 777-786.

Metcalfe, Keyes D. *Planning Academic and Research Library Buildings*. 2nd ed. by Philip C. Leighton and David C. Weber. Chicago: American Library Association (ALA), 1986, pp. 90-123.

Myller, Rolf. *The Design of the Small Public Library*. New York: R.R. Bowker, 1966, pp. 22-23.

Trezza, Alphonse F. (ed.). *Library Buildings: Innovation for Changing Needs*. Chicago: ALA, 1972.

2. Dahlgren, Anders C. *Planning the Small Public Library Building*. Chicago: ALA, 1985, p. 6.
3. The apparent omission of videocassette or microfilm collections is countered in the initial space needs assessment by more generous recommendations of space needed for other collections. While the space needs assessment methodology recommends ten volumes per square foot for a library's book collection, in practice, most libraries can achieve a greater density—up to 15 volumes per square foot. When collection space for books is calculated at ten volumes per square foot, the result is a larger allocation of space for books than the library is likely to need. As the space needs

assessment is refined, some of the space originally projected for the book collection is reallocated to other purposes, such as a videocassette collection or a microform collection.

4. To estimate the average number of volumes in circulation at any one time, divide the total annual circulation by the number of loan periods in a year. If the library's loan period is one month, divide the annual circulation by 12. For a three-week circulation period, the divisor would be 17.3; for a two-week circulation period it would be 26. Note that this formula provides only a rough estimate averaged through the year; the actual level of circulation activity will vary at different times.
5. There are many simple computerized drawing programs on the market that can assist your presentation. MacDraw for the Macintosh and AutoSketch for the IBM PC are two examples.
6. Finney, Lance C. "The Library Building Program: Key to Success." In *Public Libraries* 23.3 (Fall 1984), pp. 80-81.
7. Hall, Richard B. "Communicating with Graphics in the Library Building Program." *Illinois Libraries* 67.9 (November 1985), pp. 781.
8. Finney provides another list of topics to consider under the heading "General Statements" for a building program statement.
9. Wisconsin accessibility requirements are found in the state building code, ILHR 52.04, Wisconsin Administrative Code. As of this writing, the federal codes that govern accessibility requirements are "Uniform Federal Accessibility Standards," found in the Code of Federal Regulations (41 CFR 101, Subpart 19.6, Appendix A).
10. Boss, Richard. *Information Technologies and Space Planning for Libraries and Information Centers*. Boston: G.K. Hall, 1987.
Cohen, Aaron, and Elaine Cohen. *Automation, Space Planning and Productivity: A Guide for Libraries*. New York: Bowker, 1981.
11. The following resources address lighting for libraries:

Metcalf, Keyes D. *Library Lighting*. Washington, DC: Association of Research Libraries, 1971.

Waters, Bradley A., and Willis C. Winters. "On the Verge of a Revolution: Current Trends in Library Lighting." In *Library Trends* 36.2 (Fall 1987), pp. 327-349.

The Illuminating Engineering Society of North America also issues standards for lighting in different environments; in particular, see *IES Lighting Handbook: The Standard Lighting Guide* (New York: The Illuminating Engineering Society of North America, various editions, quinquennial).

12. One publication of interest is *Designers' Handbook of Building Security*, edited by Peter S. Hopf (New York: McGraw-Hill, 1978).

Assembling the Project Team

Any successful library building project is the result of a team effort. Because a library building project occurs in a public (and political) arena, public representation is important, and the library board typically brings such representation to a project. The librarian brings to the project a detailed understanding of the day-to-day workings of the library and its unique requirements. A library building consultant, who has experience in library space planning, can help when the project leads local planners into unfamiliar territory. And an architect must be employed to ensure that the building meets the structural and functional needs of the library.

These four parties—the library board, the librarian, the consultant, and the architect—constitute a library project team. At different times during the building process, a different member of the team may take the lead in moving the project toward its goal. At other times, various individuals who can provide specialized knowledge may join the team.

This chapter focuses on the roles of different members of the project team.

The Role of the Library Board

The library board provides the legal and fiscal authority to pursue a project. The library administrator may provide leadership and direction in the initial planning stages and in assembling the data, but it's the board that carries the overall responsibility. Active board participation is crucial to a project's success, especially as the project agenda moves into the political arena. A chapter on "The Trustee and Library Buildings" in Virginia Young's *The Library Trustee*¹ notes the following library trustee responsibilities:

1. Select a qualified librarian (if one is not already employed) to direct the service planning to be reflected in the building program.
2. Study the community, including broad demographic, economic, and other trends as they define library service needs.
3. Initiate a needs assessment based on the community study.
4. Consider the alternatives to meeting the needs: rental property, an addition, a new building, etc. If the decision is to construct a new building or an addition, the ensuing steps must be taken.
5. Select and appoint a qualified building consultant.
6. Evolve and approve a written building program statement describing present and future needs.
7. Appoint a building committee from within the board membership, or, if the board membership is small enough, the board can act as a committee of the whole.
8. Plan and direct a campaign to let the community know about the need for new or expanded facilities.
9. Select and appoint an attorney.
10. If the project is not endowed, plan and conduct a referendum campaign or whatever is needed financially.
11. Select and appoint a qualified architect.
12. Select and purchase a site with the advice and assistance of the planning team.
13. Approve preliminary plans.
14. Estimate the cost of operating the new building and seek assurance of adequate operating funds once the project is completed.
15. Approve the final plans and authorize the invitation for bids.

16. Approve construction contracts.
17. Monitor project progress.
18. Select and appoint an interiors specialist.
19. Approve furniture and equipment contracts.
20. Approve and pay invoices.
21. Arrange the dedication and open house.
22. Help to acquaint the public with the new services and programs now possible and available.

The Board's Legal Authority

Library board trustees must be fully aware of the responsibilities and authority conferred on the board by statute. In Wisconsin, those powers are enumerated in s. 43.58, Wisconsin Statutes:

(1) The library board shall have exclusive control of the expenditure of all moneys collected, donated or appropriated for the library fund, and of the purchase of a site and the erection of the library building whenever authorized. The library board also shall have exclusive charge, control and custody of all lands, buildings, money or other property devised, bequeathed, given or granted to, or otherwise acquired or leased by, the municipality for library purposes.

While this language seems to grant a broad authority to pursue a building project, trustees must acknowledge that state statute also empowers a municipality to create a library or to form a joint library with other municipalities. State statute further provides that the municipality shall levy the tax for the library fund. Thus, the library board must have the implicit approval of municipal funding authorities to pursue a building project. The library board should consult with local officials to determine if other municipal or county laws exist that will affect the board's implementation of the building project. Clearing these legal provisions early will help board members focus attention on their proper responsibilities and avoid confusion or conflict with other public officials.

Forming a Building Committee

The board may choose to appoint a building committee consisting of members of the board who have a particular interest in the project or a particular political strength within the community. A smaller committee often is less cumbersome to work with than the entire board, but the board may decide to serve in this capacity as a committee of the whole. If you select a smaller committee, you'll need to carefully delineate its responsibilities and authority. You can delegate virtually any combination of the board's responsibilities to the committee, except decisions that involve the obligation of funds or the awarding of a contract.

The committee should have a clearly defined statement that determines when it must report to the board and seek its approval before proceeding. For instance, what steps should the committee follow in selecting a building consultant or architect? In some cases, the committee may be authorized to make the selection and negotiate the necessary contracts, or the board may wish to limit the committee's authority to submitting recommendations. In keeping with the board's statutory obligations, it's the board that must approve and sign the contract with the architect, although the committee may make the "unofficial" selection.

The building committee may be authorized to work with the architect in designing the project, while the full board reserves authority for final approval of the drawings. The

committee may be authorized to review and approve change orders, but the board also must formally approve those changes.

The library administrator's responsibilities also must be carefully delineated. For instance, the administrator must know how far to go in presenting ideas and making decisions with the architect. In many cases, the library administrator has a relatively free hand in working out building details, and the building project committee concerns itself only with the overall concepts and results of design. When a library administrator is willing and able to undertake these responsibilities, this practice usually works best. Your regional library system and state library consultants can provide further guidance in the determination of responsibilities.

One or more members of the library board should represent the board on the project team. Since many meetings probably will take place during the day and regular attendance is essential, it's important that the board's representatives can attend these meetings.

Just as all the board's members may serve on the building committee, they may all serve on the project team. However, this may make it difficult to hold meetings as frequently as necessary, and discussion may be more difficult if the project team is too large.

Moving the Project Forward

The library board's responsibility, whether through the building committee or the entire board, begins with recognition of the need for an improved library facility. Usually, this takes the form of authorizing the library administrator or building committee to conduct the needs assessment study. From that time on, the board should be involved in planning and implementation. Since each project differs and the relationship of the library board to local government varies enormously from one place to another, it's difficult to present more than a general framework for the board's participation. A summary of key decision points follows.

The Needs Assessment Study

After evaluating the pros and cons of remodeling, expanding, construction, or converting an existing building, the board makes the final selection. This selection should receive the municipality's endorsement. Then the library administrator usually is authorized to proceed with preparing the building program statement.

Choosing a Building Consultant

At this time, the library board may decide to retain a library building consultant. A list of consultants is available from sources such as the Division's Bureau for Library Development and the Library Administration and Management Association of the American Library Association. If a consultant is chosen, the board must carefully delineate the consultant's responsibilities and authority. The consultant may be limited to reviewing the building program and architectural drawings, or he or she may be responsible for preparing the building program statement and working directly with the architect during design.

Approving the Building Program Statement

The building program statement is the most important planning document produced in support of any capital project. It's imperative that the library board have ample opportunity to provide comments and direction as the program is developed. After a completed draft is presented to the library board, the board should adopt the program formally.

Choosing an Architect

The library board usually is responsible for selecting an architect. In some cases, the municipality may make this selection, particularly if the library is going to be part of a joint municipal office/library building. In any case, and especially if the architect has been retained by an agency other than the library, it's important to clarify the architect's responsibility to the library board.

Seeking Support

Seeking official support for the building project from city or county authorities may be the most important role the board plays.

The board can generate support in a variety of ways, depending on the relationships between individual board members and public officials as well as the procedures of the particular jurisdiction. In some cases, board members may use a very informal approach, discussing the proposed project with a few key individuals who can be expected to present the library's needs to the official body. In other cases, the library board may choose to make a formal presentation at a joint meeting where members of local government are present.

Because of the scope of the library building project, the board should take no major actions without the concurrence of the agency or agencies to which it reports. Unless local practice dictates otherwise (which is rare), the municipality should be apprised of the results of the needs assessment study, the building program statement, the architectural findings and preliminary cost estimates, and so on.

Out of this reporting process should come the decisions granting authority for the library board to proceed with the project. There should be a clear determination of which body is to be legally responsible for the project and for steps such as the following:

- resolving the financial implications,
- submitting the project to bids,
- awarding contracts, and
- expending funds and maintaining accounts.

A joint committee of the library board and the common council or board of supervisors may be established to investigate and recommend methods of financing the project. However, final authority for financing usually rests with the council or board of supervisors, unless the library has received bequests or other special funding.

Architectural Development

As design work proceeds, the board will review the measures taken to implement the building program statement. Regular reports from the library administrator or the building project committee are in order. The board or its authorized committee should give formal approval to the plans at the following three critical stages:

- schematic stage,
- design development, and
- working drawings and specifications.

With the approval of the third stage, the architect will prepare the bid documents for submission to contractors. In most jurisdictions, the city or county building department reviews the working drawings and bid documents, and the library board, the council, or the board of supervisors issues the call for bids.

Interim Review of Projected Operating Costs

Once building plans have reached the point where major decisions have been resolved—perhaps midway into the design development stage—the library board should request the library administrator to analyze the impact the new building will have on library operations and the annual operating budget. The administrator should detail for the board's review all implications the new building will have on staffing, library operations, collections, and services. If certain features in the building plans seem to be increasing costs excessively, the board should study these features while there is time to make changes in the plans. Such a study could prevent considerable disappointment and some unpleasant surprises later on.

Construction

One responsibility of the board during the construction process is to understand the bidding process. Bidding requirements for public projects are outlined in statutes (s. 62.15, Wisconsin Statutes, for cities and towns; s. 66.28, Wisconsin Statutes, for counties and villages). Following an analysis of the contractors' bids by the designated authority, the final award of bid is made and construction begins.

Once construction is underway, the board can concentrate on completing the project, including the final stages of interior design and selection of furniture and equipment. Change orders during construction also will come to the board for approval. If the board is legally responsible for the construction project, it should receive regular monthly progress reports from the contractor or construction supervisor. These reports should indicate the work completed during the previous month, the work now in progress and new work expected to begin during the month. Each progress report should clearly indicate how well the construction schedule is being maintained and if significant delays have occurred or are anticipated. The board also may wish to meet periodically with the contractor to discuss the project and, upon occasion, tour the building site. Such tours, of course, must be done only at prearranged times and under conditions deemed safe by the contractor.

Opening the New Library

After construction is finished, the board will be responsible for opening the new facility to the public. This should be billed as a major event with sufficient publicity to command public attention. By capitalizing on the natural interest most people have in new and expanded buildings, the board should seek to attract those who don't ordinarily visit the library as well as regular users. The dedication program should highlight the advantages of the new facility and recognize those who have been instrumental in the project's success.

The Role of the Librarian

The library administrator commands a very complex role that varies depending on the size and nature of the project and whether or not a library building consultant is available. In general, the library administrator will be responsible for the day-to-day coordination of the project team's efforts. The librarian also will contribute a detailed understanding of how the library operates and how it should operate in the future.

The librarian should be involved at every step in the process, although the level of involvement may shift depending on the talents and interests of other project team members. Often, the librarian is responsible for preparing the needs assessment and building program statement, although a building consultant may write them. While the

board usually hires consultants and architects, the librarian should participate in the selection because he or she will be working closely with them. During the development of architectural plans, the librarian should advise the board regarding the implications of any proposed design. How will it affect current service routines? How will it affect staffing levels? What type of maintenance will be required by the proposed wall surfaces, floor coverings, and so on? The librarian should involve the rest of the staff, encouraging their comments and review of the plans.

A major building project will create uncertainties among library staff members about how routines and activities will change in the new building. Wide staff participation usually helps allay anxieties over impending changes and helps ensure that a proposed design addresses as many functional requirements as possible. Truly, some of the most productive suggestions for improving a design come from staff members who work daily in a particular area. The librarian has the primary responsibility for creating an environment that encourages staff participation.

As the board seeks financial support for construction and for continuing operations in the expanding building, the librarian should advise the staff on the options under consideration.

During construction, the librarian likely will act as the major channel for communication between the board and the architect and contractor. The librarian should attend every job-site meeting to help the architect review the progress and to respond to questions and clarifications about the plans as they affect library operations. The librarian also should review proposed change orders from the same perspective.

Clearly, the library administrator must be prepared to attend many meetings and to deal with a myriad of notes, correspondence, budgets, schedules, checklists, plan review sessions, and decisions. The administrator often will find it necessary to delegate part of his or her normal workload or defer other projects in order to concentrate on the building project. It's crucial for the library administrator to allow enough time to fully participate in the project.

The Role of the Library Building Consultant

Library building consultants have been retained more in recent years. It would be worthwhile to review literature by Keyes Metcalf and Robert Rohlf, both experienced consultants. Also, refer to "Architecture and Building—Consultant Services" in recent issues of *Library Literature*.²

The Consultant's Responsibilities

Library building consultants usually are experienced library administrators who have been involved in several building projects. Most perform their services in addition to their regular duties, but a few devote full time to consulting practices.

The library building consultant's role varies. Consultants often are retained to help the library assess its long-term space needs, evaluate options to meet those needs, write a building program statement, and review the architect's plans that evolve from the building program. Some consultants contend that most of these steps are best performed by local planners—the librarian or board members. They believe their role as consultant is to educate and orient other members of the project team to space planning issues, to review the efforts of other team members, and to guide the team through its deliberations rather than make decisions on behalf of the library and produce the program themselves.

Since language and communications often create problems, the library consultant usually attempts to interpret intricate library concepts and explain requirements in language familiar to the architect. The library building consultant must be a diplomat that has only the best interests of the future library at heart. The consultant represents the long-range viewpoint.

Some architects may offer their services as building consultants. Rather than focusing on service-related space needs, as a librarian consultant would, the architect consultant may focus more on structural and engineering concerns. In some cases—such as when preserving a historic structure, for example—this expertise may be especially useful.

Selecting the Consultant

The decision to hire a library building consultant will be determined by available funds, the expertise of other members of the project team, the amount of time available (the consultant's expertise can often save time in the planning process), and geographic location (a remote location may be more costly for a consultant to serve). Limited consulting services usually are available from the regional system or the state library.

It's best to retain the consultant early, before naming the other members of the project team. Consultants can perform their greatest service by helping libraries through the initial stages of planning, into the schematic design phase of architectural implementation.

To select a building consultant, the library will issue a request for proposal (RFP) briefly describing the library, the community, and the nature of the problem to be addressed. The RFP will ask the consultants to describe the methods they would use to gather information and develop recommendations. Ask consultants to submit their resume, references (including a sample of their work for another library), a schedule for the project, and an itemized project budget. Sample RFPs may be available from your regional system or the state library; an outline for a consultant RFP is in Appendix F.

Many consultants base their fee on a set per diem, estimating the number of days a particular study likely will require and establishing that as a not-to-exceed figure. Office overhead may be another part of the consultant's budget, along with direct reimburseable expenses (usually including travel—transportation, lodging, and meals—postage, copying, and telephone costs). Sometimes a consultant may propose an hourly fee, particularly for certain preliminary studies. In some cases, a consultant may propose a fee based on a percentage of the anticipated construction contract cost. The fee may be negotiable.

After evaluating the criteria in the RFP, contact previous library clients for references. If an interview is required, note this in the RFP. (Telephone interviews may save time and money.) When a selection is made, it's the board's responsibility to approve that decision and contract with the consultant for services as specified in the library's RFP and the consultant's response to the RFP.

The Role of the Architect

The architect's role is to translate the written library building program into the design for an effective and efficient structure. This is done through an evolution of drawings that begin as simple sketches and end as complex working drawings and specifications geared to the needs of the building contractor. The architect is a blend of artist, engineer, visionary, and pragmatist.

Except for very large projects, the architect also will represent various engineering skills, such as structural, mechanical (heating and air conditioning), electrical, and plumbing. Unless other arrangements are made, the architect also may be committed to

providing a layout for furniture and equipment, including the selection of furniture, equipment, and colors.

Selecting the Architect

Some library projects begin with the selection of an architect. This usually is premature. The decision to retain an architect should be made after the library building program statement has been completed and after the project has received approval to proceed. If retained prior to these decisions, the architect may waste valuable time or be tempted to move into the designing of the structure before the necessary information is available. Since most architects require an initial payment as a retaining fee, those funds must be available for immediate use.

Where possible, use the following procedure for choosing an architect, modeled on the Quality-Based Selection (QBS) method of the Wisconsin Society of Architects:³

1. Compile a list of architects
2. Invite several firms to submit credentials
3. Evaluate those credentials
4. Visit other projects completed by the firm
5. Interview the top candidates
6. Evaluation: round two

Compile a List of Architects

The first step is to prepare a list of properly certified architects.⁴ A list of a dozen or more names is not too large a group to consider. The best recommendations may come from libraries recently built in the area; contact those librarians and ask who their architects were. You can supplement the list with registered architects known by members of the project team or recommended by public officials and others. After public announcement of the library's plans to expand, a number of firms probably will contact the library, and they can be added to the list.

The Bureau for Library Development also can supply the names of registered architectural firms that have designed library buildings in Wisconsin. And the Library Administration and Management Association of the American Library Association can provide a list of recently completed library buildings, including the names of their respective architects. More architect's names can be found in the annual "Architectural Issue" of the *Library Journal*. Your state chapter of the American Institute of Architects is another source of names.

Invite Several Firms to Submit Credentials

It's a good idea to send invitations to bid to architectural firms since all may not have heard the news of your expansion. Invitations can be in the form of a letter that provides information about the project and the selection process.

The invitation should indicate the nature, size, projected cost of the venture, and the schedule for completion. If additional information, such as a building program statement, is available, advise the architect how to obtain a copy. The letter also should give the architect particulars on the selection process—who, how, where, and when (see Appendix G for a sample inquiry letter).

Usually, selection requires two basic steps: preliminary screening based on the analysis of materials submitted by the architects, and interviews with the architects who seem best qualified.

Inform the architects of the information they should submit to qualify for the first round in the elimination process, including the following:

- a resume and record of projects completed and in process
- information about the size of the firm, including its areas of expertise and experience
- the number of people in the firm serving in various capacities
- a list of projects representative of the firm's work, including any libraries
- specific information needed to make comparisons called for in your evaluation criteria

Be sure to place a specific deadline on their responses (usually two to four weeks). Don't hesitate to call firms that have not responded as the deadline nears—such an oversight may arise from many causes and could deprive you of considering a preferred choice.

Evaluating Credentials

After you receive the applications, review them to make sure there is sufficient material for evaluation. Secondly, seek recommendations from previous clients. Place special emphasis on the firm's ability to work well with the other members of a project team.

Next, narrow the field to those you want to interview. A basic list of criteria can help you remain objective. An evaluation matrix work sheet is provided in Appendix H. The list of criteria could include the following:

- size of the firm and number and types of personnel (i.e., architects, engineers, drafters, interior designers)
- experience in handling projects of similar type and size
- recommendations of previous clients
- appropriateness of design as expressed in recent projects
- past record of accuracy in estimating construction costs
- the average number of change orders made on projects during construction and their cost as a percentage of the total project cost
- ability to work closely with the building team
- ability to effectively supervise the project during construction
- responsibility assumed by the architect for revision of plans if construction bids exceed budget
- required engineering services provided by the firm or by arrangement with engineering consultants (If the latter, names of those consultants should be provided.)
- fee structure
- previous experience in designing libraries

Comparing the submitted material—which will range from elaborate resumes and brochures to typewritten fact sheets—is a lengthy procedure. To begin with, the selectors should reach a tentative agreement on the number of firms to interview, since this will help them determine how stringent to be. If the project is a large one, smaller firms with limited staff may be the first to be eliminated. Firms that have had experience with libraries or other public buildings of similar size will be preferable. Firms large enough to have certain in-house engineering capacity may be judged stronger than others in some situations.

You should narrow the field of candidates to no more than five or six to invite for interviews.

Visit Other Projects Completed by the Architectural Firm

Visits to other libraries designed by the architects under consideration may help in the selection process. The architects will be happy to supply a list of buildings they have designed. Make advance arrangements with the owners or their representatives to tour the buildings and talk with staff; visits by teams of two or three people seem to work best. Learn as much as possible about the building before the visit. Prepare fact sheets listing size, cost, and special features. After touring the building, a discussion with management, staff, and maintenance supervisors will provide insight into the adequacy of the design and any problems that may have arisen. Ellsworth has the following advice:

Each visit should result in a report to the planning team. Each visit should be carefully planned by the librarian and the consultant to provide specific information. No random junkets. There are many new buildings without general merit but with one or two outstanding features, and these should be identified. There are also a few buildings which have so many good qualities that they deserve detailed study . . .

Visiting libraries is likely to be a waste of time and money unless each visit is pre-planned so that the visitors know what to look for and why.

One is not likely to gain objective evaluations from the library director or the architects who were responsible for planning the building being visited. Sometimes more can be learned from staff members who work in the building but who did not help plan it.⁵

Another useful resource to help you prepare for library visits is *Checklist of Library Building Design Considerations* by William W. Sannwald and Robert S. Smith.⁶ You can adapt this list into a shorter, more convenient format as needed.

Interview the Top Candidates

After the field has been narrowed, send invitations to those chosen to be interviewed, and letters of thanks to those not selected. The invitation should include information on

- the time and place of the interviews,
- the length of time the architects have for presentation, and
- a list of questions that will provide a basis of comparison (a list of possible questions appears as Appendix I).

It's imperative that you ask each firm to include among its representatives the architect who will be responsible for the project and the design architect (if they are not the same person) at the interview.

In preparing for the interviews, each member of the selection committee must become thoroughly familiar with the candidates by reviewing the materials they have submitted. If possible, committee members should visit one or more of the buildings designed by each architect in order to have a visual understanding of the firm's work.

Allow the same amount of interview time for each firm—usually, about an hour. To begin, allow each firm 15 to 20 minutes to make a presentation describing its experience, philosophy, and so on; this may include a visual presentation of recent projects. Next, spend 30 minutes or so asking the questions sent to the architects earlier, and any follow-up questions that seem appropriate. As much as possible, ask the same questions of each firm to establish a basis for comparison. At the end of the interview, allow the architects five to ten minutes to summarize their firm's qualifications.

Evaluation: Round Two

Often, a second round of interviews is needed to produce a clear-cut decision. This time around, ask the two or three most likely candidates more detailed questions, clarify answers, pose new questions, and appraise the personalities involved.

Don't let fees overshadow other considerations. The most important criteria should be the architect's ability to understand a client's services and needs and translate those needs into an optimal design. The architect's communication skills are important as well; the other members of the project team must have confidence in their ability to understand and be understood by the architect. It's almost always better to select a firm that instills confidence, even if their fee is slightly higher, than to choose the firm that offers the lowest price.

When the final choice has been made, begin contract negotiations. Don't announce the decision until both the library and the architect have approved the contract.

Architectural Fees

It's important to understand the architect's fee practice. For many years, most architects have abided by a fairly common fee schedule and have considered any departure from this a breach of professional ethics. It has been common practice for architects to charge a fee based on a percentage of the total project cost. Fees vary depending on the size of the project (smaller projects are usually charged a higher percentage of construction cost) and the nature of the project (new buildings are charged a lower percentage of construction cost than additions, remodelings, or conversions).

Depending upon the size and nature of the job, the architect's fee will cover the routine structural, mechanical, and electrical engineering fees since these services will be performed either by the architectural firm or subcontracted to engineering firms. However, specialized services may not be included, and the nature of these should be clearly resolved early in the negotiations. The architect may, for instance, exclude from normal services such items as detailed interior design, acoustical engineering, theatrical lighting, and landscaping.

The fee ordinarily is payable to the architect in a series of monthly or other regular payments with a specified portion of the total fee payable for each phase of work completed. The standard contract usually recommends that 15 percent of the architect's total anticipated fees, based on the eventual construction cost of the project, be paid through the schematic design phase.⁷ Another 20 percent of the total anticipated fees will be paid through design development; 40 percent through the delivery of the working drawings; 5 percent for bidding and contract negotiation with the builder; and the remaining 20 percent for monitoring progress through construction.

Extra services may be provided at a specified rate—usually a payroll-plus-overhead figure. Identify these extras and the basis for payment during the interview and subsequent negotiations.

The Architectural Agreement

Over the years, architects have evolved a standard contract. Since architectural services are quite specialized, it's to the library's advantage to use such a contract that has been tested in the courts. This contract provides opportunity for local adaptation through amendment while retaining the fundamental legal provisions. If the library wishes to substitute an original contract, an attorney familiar with architectural practice should review it.

Besides the usual contract provisions, specify whether the architect will supply one or more colored renderings of the building and a working scale model at the end of the schematic phase. You also may specify that an initial layout of furniture and shelving be included in the schematics as evidence that the design will accommodate the library's collections and functions. And the contract should detail and clarify the nature of construction supervision. For example, ILHR 50.10, Wisconsin Administrative Code, states in part that all construction "shall be supervised by a Wisconsin registered architect or engineer . . ." and further that "prior to the start of construction, the owner of the building or structure . . . shall designate to the department in writing, the name and registration number of the architect, engineer or designer retained to supervise construction of the building or structure." Supervision, as defined in ILHR 50.10, Wisconsin Administrative Code, is as follows:

... a professional service, as distinguished from superintending of construction by a contractor, and means the performance, or the supervision thereof, of reasonable on-the-site observations to determine that the construction is in substantial compliance with the approved plans and specifications.

In other words, the architect is not concerned with the day-to-day enforcement of the building code or other regulations. This falls to the general contractor's construction supervisor, or the clerk of the works (see Chapter 12).

Others Who May Become Involved

Given the complexities of a building project, there are many others who will become a part of the project team.

Local Government Officials

Some project teams include a council or village board member to ensure constant communication between the library project and the municipality. If this is not possible, a council member who serves on the library board may provide the needed link.

If there is no formal representation established between the library and the municipality, the librarian and library board should make extra efforts to keep local government informed of developments in the library's building project.

Other officials who might temporarily serve on the project team include members or chairpersons of local planning and zoning commissions, the local finance director, or local building inspectors.

The Contractor

The contractor is responsible for completing the building according to the architect's written plans and specifications. The contractor (or contractors) will be chosen through a competitive bid process. The contractor's specific responsibilities comprise the focus of Chapter 13.

Other Representatives

A community representative can be a valuable asset to the project team if properly chosen. A library staff representative also may be appointed on large projects. However, it's more common for the library administrator to establish a staff committee as an advisory body, requesting that a representative from that committee meet with the project team when matters of particular importance, such as staff facilities, are involved.

Other specialists also may merit positions on the project team. If you plan to use an interior designer other than the architect, include this person as a member of the project team no later than the schematic phase. This member of the project team will be responsible for developing the furnishing layout; selecting colors and finishes to be used in the furnishings, walls, and floors; estimating budgets; and writing specifications for furniture and equipment to be purchased.

Because a building project typically involves a much larger budget and a more sophisticated financing strategy than the library normally encounters, a financial consultant may be helpful. A financial consultant helps the library or the municipality evaluate funding alternatives. What are the relative costs to the library, the municipality, and local residents to borrow project funds? Should the municipality bond for the project? What interest rates will a library bond likely have to pay? How long should the bond retirement schedule be? What combination of interest rates and bond retirement terms affords the greatest value and the least cost to the residents?

The State Historical Society may become involved in the review of plans if they affect a structure that is on the National Register of Historic Places. They also will become involved if the structure is potentially eligible for inclusion on the National Register and the board chooses to seek certain types of grant funding for the project. Receipt of federal grant funding involves other regulatory agencies as well.

Working with the Project Team

While the project team may be put together all at one time, it's more likely to evolve as the project progresses. The library administrator and board representatives come first, followed by the library building consultant, the architect, and any other representatives or specialists.

The Project Team during Construction

The team may be able to meet less frequently during the construction phase. After a contractor has been hired, that individual's presence on the project team can help it keep pace with the progress of construction, consider change orders, and start making plans for dedicating and occupying the building. During construction, the team can finalize plans for interior design, select furniture and equipment, and make any landscaping decisions that may have been deferred until after construction began.

When the building is finished, the team should prepare a report of the project and attach records of individual meetings as an appendix. This will provide future library administrators with a complete document and record of all decisions. In any case, compile such a record and keep it for the library's archives.

Project Team Meetings

The nature of the project team's work requires a high degree of informality. The library administrator often acts as the chairperson or moderator, calling meetings as necessary, overseeing correspondence, and routing plans and reports for study. Meetings require a large table on which plans can be spread out and discussed. Every attempt must be made to promote a full exchange of views. Frankness, seasoned with diplomacy, is the order of the day.

Prior to each meeting, the library administrator or secretary should send an agenda to each team member. During the meeting, it's essential to keep careful minutes of all important points, including decisions, special assignments, and schedules. The secretary should type these minutes and send copies to each project team member as soon after the meeting as possible.

At the conclusion of each session, the library administrator should review all decisions and assignments with the other team members and make sure that everyone clearly understands them. Between project team meetings, a good deal of information gathering often occurs, with reports scheduled for a subsequent time. It's important that such assignments be completed on schedule. Seeing that these assignments are completed on time is a part of the library administrator's job in coordinating the project team.

Before the end of each meeting, the project team will want to establish whether or not the project is on schedule and the time, date, and place of the next project team meeting. Delays in project schedules can easily occur with all sorts of consequences. Frequent reference to the schedule will avoid such unpleasant surprises and reinforce the need for the project team to make decisions, gather information, and complete other assignments as scheduled.

Community Involvement

Community involvement often is seen as a key to ensuring broad-based community support. By involving community leaders and representatives, the facility may better reflect the needs and interests of the public. Such involvement also ensures that the project receives continued public visibility and stands a better chance for broad acceptance.

Friends of the Library

Where a Friends of the Library organization exists, the library board probably will find a natural interest in improving the facility. Therefore, it may be quite simple to enlist citizen participation through an advisory committee appointed by the Friends. The library administrator may ask the advisory group for ideas or use the group as a sounding board for various alternative courses of action, assuming that the membership is fairly representative of the community. Many Friends groups have become involved with private fund-raising efforts in support of a building program.

If no Friends group exists in your community, the library building project may offer an opportune time to organize one. Be aware, however, of the time and energy necessary to organize any new service group. This is not a project that can be taken on by the librarian or building committee in addition to their building project responsibilities. Also, be aware that a Friends group should be founded in a broad commitment to support the library rather than working toward the specific end of a new or expanded building.

The Community Committee

If a Friends of the Library organization does not exist and the library board wishes broader representation, a community advisory committee may be the solution. Various organizations may be asked to appoint one or more members, while the board chooses representatives at large. Once formed, the community advisory committee would serve in the same capacity as a Friends committee. However, this committee would differ from a Friends group in its attention to a specific, single goal—improving the library's facility.

The Citizens' Committee

A broad-based citizens' committee can provide a somewhat different approach. This is helpful when it's difficult to gain action on the part of public officials. In one community where several attempts to provide an adequate library building had failed, the library board persuaded the city council to appoint a Select Committee of One Hundred. The council selected several prominent citizens who were joined by representatives from various clubs and organizations. Special attention was given to representation from parts of the community that frequently opposed projects that might increase taxes. The council appointed a convening officer and provided a statement of charge for the committee, which included determining if a new or improved library facility was actually needed, and if so, where it should be located and how it should be financed.

At its first meeting, the Select Committee of One Hundred elected permanent officers and divided itself into several task forces, including needs assessment, finance, site, and public information. The four task force chairpersons and the elected committee officers became an executive committee.

For several weeks, the task forces studied information supplied by the library board and other sources. The findings then were reported to the Select Committee of One Hundred at a public meeting, which was attended by a sizable crowd attracted by continuing publicity on the committee's efforts. The findings indicated that a much larger library facility was needed and that the present building could not be economically expanded because of its physical condition. The committee endorsed the library board's findings concerning the amount of space which should be built and gave priority to the three sites the board had considered. After discussing various alternatives, the committee decided that the estimated cost of the new library was well within the financial capacity of the city and recommended that a referendum be called to approve the library building.

At a subsequent council meeting, the committee's report and recommendations were presented. The city council, which had previously failed to accept the library board's recommendations, found itself persuaded by the findings of the Select Committee of One Hundred. In its enthusiasm, the committee volunteered to provide leadership for the referendum, which won handily at the polls. In a few short months, the citizens' committee succeeded where other efforts had failed for more than a decade.

Summary

Getting the library building project underway requires the library board to actively solicit approval from governing officials. The library board provides the legal and fiscal authority to pursue the project. It also usually involves establishing a project team. The architect brings design expertise to the team. The library may retain a library building consultant to help develop service and space needs assessments. The library administrator often serves as the coordinator of most of these efforts.

The members of the project team become the catalysts who make things happen, from defining the scope of the project, to evaluating alternatives, to promoting the project in the political arena and to the community at large. If the library building project has a broad base of community support, the board may proceed directly through the official channels to seek authorization and funding. However, if there is no such tide of public support, a program of education is probably necessary.

Endnotes

1. Dahlgren, Anders C., and Charles E. Reid. "The Trustee and Library Buildings." In *The Library Trustee: A Practical Guidebook*. 4th ed. Virginia Young, ed. Chicago: American Library Association (ALA), 1988, pp. 80-81.
2. Among many publications discussing the role of the library building consultant are the following:

Mason, Ellsworth. "Consulting on Academic Library Buildings." In *Library Trends* 28.3 (Winter 1980), pp. 363-380.

Metcalf, Keyes. "The Library Building Consultant." In *Problems in Planning Library Facilities: Consultants, Architects, Plans and Critiques*. William A. Katz and Roderick G. Schwartz, eds. Chicago: ALA, 1964.

Rawles, Beverly A., and Michael B. Wessels. *Working with Library Consultants*. Hamden, CT: Shoe String, 1984.

Rohlf, Robert H. "The Consultant's Role." In *Library Buildings: Innovation for Changing Needs*. Alphonse Trezza, ed. Chicago: ALA, 1972.
3. Further information regarding the Quality-Based Selection methodology can be obtained from the Wisconsin Society for Architects, 321 South Hamilton Street, Madison, WI 53703.
4. Wisconsin requires that all plans, specifications, and calculations for buildings in the state must either be prepared by an architect or engineer registered with or approved by the state. See ILHR 50.07, 50.08, 50.10, and 50.12, Wisconsin Administrative Code, for details.
5. Ellsworth, Ralph E. *Planning Manual for Academic Library Buildings*. Metuchen, NJ: Scarecrow Press, 1973, p. 57.
6. Sannwald, William W., and Robert S. Smith. *Checklist of Library Building Design Considerations*. Chicago: Library Administration Management Association, 1988.
7. These percentages may be used to gauge the cost for certain preliminary design services from an architect. An architect may propose a fee of 7 percent of construction cost for a projected \$1-million new building, or an estimated \$70,000 fee. To take that project through the schematic design phase would incur approximately 15 percent of the total fee, or \$10,500. These figures, of course, must be considered estimates. Any initial payments are subject to negotiation. Many architects are willing to establish not-to-exceed amounts for initial planning work, with the understanding that when the project is funded and proceeds as planned, they will receive the full fee as negotiated in the contract.

Site Considerations

The relationship of site to the successful operation of a public library has long been the subject of study. Site selection can be a challenge because planners must evaluate each site in terms of its present qualifications and those it may possess in ten or 20 years. This chapter describes some basic criteria to consider and some ways to compare sites.

Previous Site Selection Studies

The library building, whether a main library or a branch, should be located where it can best meet its objective of providing materials and services to the greatest number of people at the lowest cost. For most communities, the location that best meets this qualification is a site near a downtown intersection. Whether traveling by foot, public transportation, or automobile, the user normally favors the most easily accessible location.

Probably no one has spent more time and effort determining effective public library locations than Joseph L. Wheeler. His initial research appeared in 1958, followed by a supplement in 1967.¹ The librarian faced with a site decision should be thoroughly familiar with these two studies. According to Wheeler, "the most effective location for a public library in the mid-1950's was in the heart of the downtown pedestrian crowd."²

In his 1967 report, Wheeler updated his data to reflect changes that had taken place in society and in libraries. Still, his ultimate conclusion remained: "The basic factors . . . lead to the inevitable conclusion that the main public library building in a city should be placed in, or kept in, or rebuilt in, the heart of the downtown business and office district."³ The next major contribution to library site studies was a 1976 symposium of library experts.⁴ While each of the nine symposium contributors took different approaches to site selection, they found that Wheeler's findings seemed to be borne out by the experiences of individual libraries, and they saw little likelihood that new library technology or other foreseeable factors would change his basic premises. Convenient access to vehicular and pedestrian traffic, adequate off-street parking, sufficient land for development, high visibility, and a location between the residential area and the downtown shopping and business district, continue to be the dominant criteria for successful library locations.

Another important study on library site selection was published by William C. Robinson in 1976.⁵ Robinson said that public libraries benefitted from the same considerations as retail establishments in choosing a site. Robinson distinguished between "high-order goods" and "low-order goods," noting that retail stores that specialize in high-order goods (automobiles and major appliances) have different location requirements than those that emphasize low-order goods, where convenient access is a far more important factor in the store's success.

Many state and regional standards that include recommendations on site selection take their lead from these studies. The *Wisconsin Public Library Standards*, for example, states that:

The library's site is readily accessible to all residents; in metropolitan areas, travel time to the library should not exceed 15 minutes one way by car, while in all other areas, travel time should not exceed 30 minutes. Where travel times to the library's principal facility exceed these limits, branches or outlets or alternate means of providing access (bookmobiles, books by mail) should be considered.⁶

There are some indications, however, that the conventional wisdom regarding site selection is starting to shift. In many larger towns, the central business district is struggling. Businesses, and the activity that accompanies them, are relocating to other parts of

the city. In cities of all sizes, the need for on-site parking, a requirement of more and more local zoning codes, is forcing libraries to consider larger sites, and a traditional downtown location is often no longer affordable.

Site Selection Criteria

Site selection often becomes an emotional issue in the community. Certain groups may argue for a site that is particularly advantageous to their interest. Individual property holders seeking to profit from the sale of a potential site also may try to direct the library's interest to one parcel or another. To counter these conflicting pressures, local planners should set objective criteria to evaluate locations. Many sources in the literature describe sample site selection criteria.⁷ Some of the most common criteria include the following:

- size of the parcel
- availability of the site
- cost of the land
- accessibility of the site
- visibility of the site
- adjacent uses and services
- orientation of the site
- zoning of the site
- topography of the site
- shape of the site
- hidden obstacles and subsurface conditions of the site

Other criteria may have a bearing on a specific project as well. These may include access to mass transportation, location in a tax incremental financing (TIF) district, or more specific variations on the criteria listed above.

Size of the Parcel

The most obvious criteria is whether the parcel is large enough. The site should support the footprint of the building (that is, the amount of land that the structure itself will occupy when viewed from above), plus on-site parking required by code, green space, landscaping, easements, and setbacks.

Library space planners often suggest that public libraries of 20,000 to 25,000 gross square feet be built on a single level. This offers the advantages of reduced capital and operating costs (public service space contained on a single level can be monitored effectively with fewer staff at fewer desks or control points). As buildings grow beyond 25,000 gross square feet, the distances involved with moving patrons and material from one corner to another grow too great, and it becomes more efficient to build up rather than out. The need to provide on-site parking in accordance with local code is another important factor determining site size.

Depending on zoning requirements for set-backs and other use limitations, between 25 percent and 40 percent of the site's total area should be reserved for green space and landscaping.

Ideally, the site also should be large enough to support future expansion. A site that is too small may force the library into multistory expansion, adding to both the cost of construction and operation.

Availability of the Site

Some communities have waged long battles over a new library location only to learn that one of the sites in question was not available. Although jurisdictions have the "right of eminent domain"⁸ and can condemn property for public use, including the construction of a library, communities use this power very sparingly, preferring to avoid potential conflict and legal costs.

While a prospective site is considered, many factors may affect its availability. Realty transactions may be occurring behind the scenes that remove key parcels from the market. Acquiring real estate sometimes is subject to lengthy litigation that clouds titles and makes purchase difficult, particularly when it's part of an estate undergoing probate. Land bordering highways may be partially committed to major improvements in accordance with a county, state, or federal highway master plan. Utility easements sometimes split desirable parcels into unusable fragments. The list of factors that can affect the availability of a given site is almost endless. Thus, site selection warrants thorough investigation.

Cost of the Land

The relative cost of one site compared to another often is used as the major reason for forcing a library to accept a secondary location. Often in the course of initial discussions, people make claims for the cost of individual parcels that have little basis in fact. When the debate reaches this point, the library may want to call on an appraiser, who will fully investigate the properties under consideration for a relatively small fee. The appraiser will determine the identity of the respective owners and, by a variety of methods, establish a value for each parcel. This can be done confidentially. Sometimes such investigations uncover unexpected quirks in ownership, lot size, and configuration.

If you don't use an appraiser, the usual basis for comparison is the value at which the land was assessed for taxing purposes. Although such assessments presumably represent a consistent percentage of the actual value, they don't necessarily reflect the price the owner will accept for the property.

In evaluating land costs, it's often useful to calculate them as a percentage of the total project cost. This may provide some surprising results. Libraries have been known to purchase land equal to half the value of the library building in order to guarantee good access for the public in the years ahead. Because land values are determined largely by local factors, there is no way of establishing an accepted norm or standard. In reports to *Library Journal* on land prices paid by libraries in recent years, the cost of land ranges from 0 percent of project costs (choosing to use land already owned by the municipality) to 25 percent of project costs, with a few examples above that scale. Some experienced library administrators believe it's better to give preference to a good site rather than to a larger building, if a choice has to be made between the two.

Accessibility of the Site

In traditional settings, convenient access leads planners to consider a central location. Planners should examine access by car as well as pedestrian access. Is the site on a major traffic artery? If mass transit is available, does it serve the site?

Some aspects of accessibility compete with one another, and each community must resolve this tension according to its own needs. There is a natural tension between vehicular and pedestrian access. Vehicular access suggests a location on a heavily traveled road; pedestrian access, on the other hand, could suggest a location somewhat off a main street, especially for the sake of the safety of younger children.⁹ A heavily

traveled street, while affording one degree of access, at the same time can discourage people from braving congestion and crowds.

Visibility of the Site

An accessible site usually is one that is highly visible as well. The site should be one that identifies the building as a library and serves as a continuing reminder of the library's contributions to the community.

Adjacent Uses and Services

Robinson's paper on site selection notes the "Theory of Compatible Uses" as one important aspect in retail site selection.¹⁰ This theory suggests that neighboring retailers experience an increase in sales that is proportionate to the amount of business customers do at *both* stores. Planners need to consider how their patrons use the library. Do they tend to combine a trip to the library with other errands? Do they use the library in support of schooling and course work? What kinds of neighboring uses would attract library patrons? Do the neighboring businesses operate during roughly the same schedule as the library, or will there be times during the week when the library becomes the sole destination for people coming into the area? Do adjacent uses contain any nuisance factors that would deter residents from visiting the library?

Orientation of the Site

Sometimes a site's orientation prompts strong arguments in its favor, especially if the building's design relies upon the sun for daytime lighting and open windows for ventilation. There also is a continuing concern for energy conservation. Energy saving today is a matter of good design and engineering as much as it is of site orientation. The potential for solar energy, however, is increased if the site is not shaded by adjacent structures or trees and can maximize exposure of energy panels to the sun. Prevailing winds and blowing snow also are factors to consider.

Zoning of the Site

It's important to determine how each site is zoned. The municipal planning office can provide this information and explain the restrictions each zone carries. Although the municipality usually is willing to adjust zoning requirements where a public building is concerned, there is likely to be less difficulty if the site is already zoned for use as a library.

Topography of the Site

The topography of each site constitutes another important criterion. Usually, level sites are preferred. Though parcels of land with distinct differences in grade can be interesting building sites, they're more expensive to work with and sometimes require additional money for drainage lines or other features. Topography also may affect provision of access for the handicapped. If there is any doubt in your mind about the potential problems posed by a site's topography, consult an architect.

Shape of the Site

An irregularly shaped site may require the design of an irregular building that can foster inefficient operation. Space planners note that in the design of buildings, simple shapes are usually the most efficient. It's easier to arrange furniture in a square or rectangular room than to try to use some of the odd corners in a triangular room, for instance. A long, narrow site will likely produce a long, narrow building, which will likely create less than ideal traffic patterns. Planners also should consider how the shape of the site may limit where the building may be located on that site. Figure 6-1 shows the orientation of a library building and its adjacent parking lot on an irregularly shaped site.

Hidden Obstacles and Subsurface Conditions of the Site

Sites that otherwise seem acceptable may have hidden obstacles, so it's important to examine subsurface conditions. The city engineer or public works director usually can provide this information. Some obstacles to look for include sewer lines, abandoned drainage lines, underground utilities, improperly packed fill, underground water and streams, and bedrock.

All other factors being favorable, these obstacles usually can be overcome, although at some additional expense. Building crews can reroute sewer lines and water mains or remove abandoned pipelines, and then fill and compact the void. If sites are filled with industrial wastes or other materials, workers can either clear them and fill them with fresh materials to be compacted, or engineer the new structure's footings to compensate for unstable ground. If the surface of the site is at or near bedrock, excavation for foundations will be more expensive and basements may be precluded or be very costly.

Still another hidden obstacle is underground water. On open land this cannot be detected without digging test holes. However, where there are adjacent structures, their owners should be aware of any seepage or flooding in their buildings. If the site is along a lake, stream, river, or watershed, the floor level will be important. If other factors make the site a choice one, then the structure must be designed with sufficient water protection and possibly without subsurface levels.

Special Issues in Site Selection

Two other issues that deserve special attention are parking needs and commonly suggested sites for a new library.

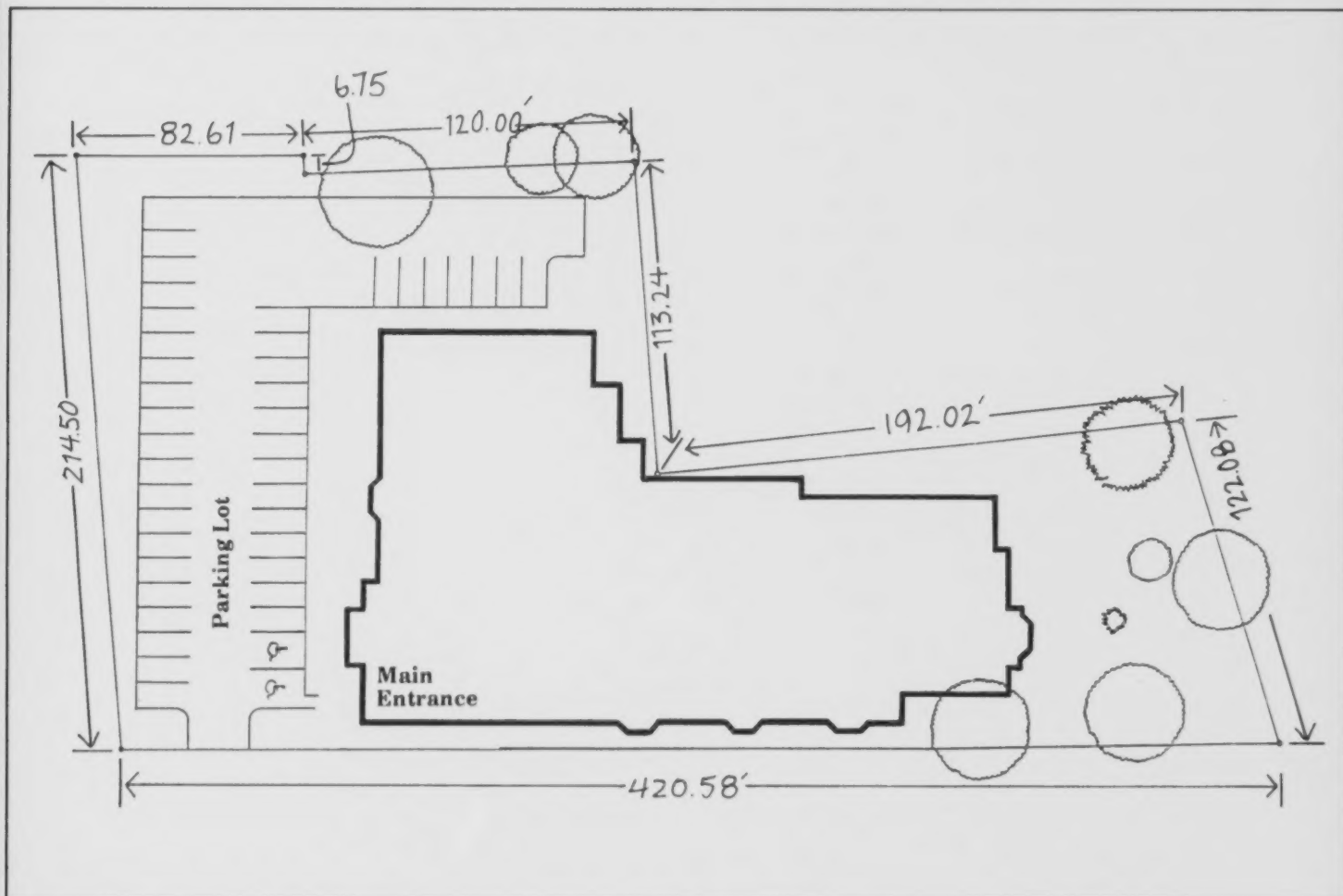
Parking Requirements

Space for adequate off-street parking is becoming increasingly important in the selection of a library site. Library administrators may want to study library parking in other communities of similar size, visiting as many sites as possible.

Wisconsin Public Library Standards states that "adequate and convenient parking is available to the library's patrons and staff on or adjacent to the library's site; the minimum number of required parking spaces may be governed by local ordinance."¹¹ However, acres of parking will not, in itself, bring people to the library. In many preferable locations, parking problems can be relieved through an arrangement with nearby lots and by laying out the library site to permit a limited amount of on-site parking.

Figure 6-1

Orientation of a New Library Facility on an Irregularly Shaped Site



Adapted from a blueprint provided by Durrant Architects, Inc., in Madison, Wisconsin.

Sometimes parking can be shared with an adjoining business, or a municipal parking lot can be used. If the library plans to provide on-site parking, the number of required parking stalls will depend upon the local building code and zoning ordinances. A ratio of one foot of parking for each square foot of floor space is one measure. Codes may call for a ratio of parking to total square footage; between two and four spaces per 1,000 square feet of gross area is common. Some codes may determine parking requirements by the number of seats provided in the library, or some combination of seating and gross area. If the parking requirement is stated in terms of a number of vehicles, assume 400 square feet per vehicle.

If a site under consideration is too small to supply room for parking, the structure may be designed to accommodate vehicles beneath or on top. However, this is expensive and is done primarily where land values are very high or available sites quite limited. Another factor to consider is how a future expansion will affect off-street parking.

Increasingly stringent local requirements for on-site parking may limit the number of affordable central city sites. Holt summarizes the shift from the central city in this way:

When an entirely new site must be acquired, the choice is likely then to go to a location that is on the fringe of the business area where sufficient land for building and parking can be purchased for whatever is deemed to be a suitable price. Finding such a location which also provides easy access to automobile traffic and high visibility appears to have emerged as primary site selection criteria in many situations.¹²

Commonly Suggested Sites

Two or three of the sites most often suggested as alternatives to a more expensive downtown location deserve mention.

The Park

Citizens' groups often recommend placing a new library building in a park. Although parks don't usually generate enough traffic flow to warrant this, occasionally one may find that a library situated in a park seems well used. Consider if the site, because of its relationship to neighboring facilities and traffic arteries, is a good one on its own merits. Even though the park seems well patronized, would the potential for use be still greater in another location?

While land for the library might be free in a park, don't let this sway you. Park locations often bring other problems. In many communities, parks are located some distance from the main streets, which shields the library from view, and surrounds it with lonely space. Structures in such locations often are more vulnerable to vandalism.

The argument that the library should be in quiet surroundings has never had validity. Quiet can best be attained through architectural design. Besides, those who normally use a park do so for social gatherings and physical recreation—purposes quite different from those that usually bring people to the library. Further, parks in some communities have gained a reputation for attracting crime, causing many people to be afraid of them, especially after dark. The library must avoid sharing such a stigma.

The Civic, Community, or Cultural Center

Recent decades have seen an increasing interest in grouping civic, community, and cultural buildings. This can have advantages, especially for a smaller community. For instance, a joint city hall/library building can share a vestibule, meeting spaces, restrooms as well as mechanical and storage spaces.

However, the library often maintains longer service hours than the other municipal offices in the building, so when the city offices close for the day, the library becomes a sole destination point and no longer benefits from those adjacent uses.

An exception occurs when the library is a part of a community center where other people-oriented services are provided. This seems particularly true in communities or neighborhoods with populations that use government agencies such as social services, welfare, health services, legal aid services, social security, and employment. Smaller communities grouping these services with the library often increase library use while saving money on shared facilities.

One liability of combining a library with a community center is failing to give the library a prominent enough location in relation to the other agencies. Because the library is likely to be open when the rest of the center's buildings are closed, it needs maximum exposure to traffic at all times.

The School Grounds

In communities where decreasing enrollments have prompted school closings, people may suggest converting a vacant school building for library use. This may pose several disadvantages. Like parks, schools often are removed by a few blocks from a main thoroughfare so children aren't jeopardized by traffic. In Wisconsin, schools also are built to differing code requirements. Floor-loading requirements for school buildings range from 50 pounds per square foot in classrooms to 100 pounds per square foot in gyms, while library bookstacks require an average load-bearing capacity of 150 pounds per square foot.

Joint School/Public Libraries

Some individuals also may suggest combining the public library with the library in a public school. They usually note the ready availability of such a site and the fact that it will improve the library's use by children.

Proponents of combined public/school libraries should be aware that

- joint use of a library on school grounds for public and school purposes unduly complicates scheduling, management, access, insurance, maintenance, and other aspects of library organization and administration;
- there is considerable evidence that adults prefer not to use a public library located on school grounds;
- making such spaces accessible to adults during school hours is difficult and creates major security problems during nonschool hours;
- since most children already walk, ride bikes, or depend on adults for transportation to the library, the proximity of the library to major traffic arteries will largely determine use by children as well as adults;
- the library building, isolated from the normal flow of traffic, will suffer loss of use;
- children comprise only one of several groups served by the library; and
- the school grounds often have additional drawbacks such as those mentioned for parks.

Where conditions appear to justify placing the community library on school grounds, the site selected should provide maximum visibility for the building and easy access for adults, including parking. If possible, consider a separate building located on the perimeter of the grounds—perhaps at or near a corner convenient to motorists. The amount of land should be adequate for the structure and parking. Sufficient distance should separate the library from the school and playgrounds to provide a buffer.

Preparing the Site Selection Report

Planners should conduct a careful study of the proposed locations and prepare a report for the board and the community. Faced with the pressures from special interests that usually accompany the site selection process, library administrators and boards often are tempted to accept whichever compromise seems to satisfy the loudest and most powerful voices. The site selection report is the best tool to use against this temptation and will aid in making a rational decision.

Presenting the Survey

The report should begin by stating that the library's objective is to attract the most users possible. The larger the number of users attracted to the library, the greater the number of transactions and the lower the per unit cost of operation.

The body of the report usually will take the form of a narrative supported by charts, illustrations, maps, and so on. Figure 6-2 and Table 6-1 illustrate how a hypothetical community might apply the following discussion in choosing a site for a new library building.

Hypothetical Scenario

After the present library building was purchased by a retail merchant, the library administrator and board have been evaluating various possible locations for a new library. A rough estimate of space needs indicates the new building will contain about 12,500 square feet and parking for 20 vehicles. In keeping with projected growth, there must be space for a future addition of at least 6,000 square feet. The search has been narrowed to three sites, none being ideal and each having its proponents and its detractors.

As shown in Figure 6-2, the major streets are Center and Main, with the major business spreading north and south of Main along Center. Industry has sprung up along the railroad tracks and around the shores of West Lake. Three elementary schools and one high school serve the children. Single-family residences occupy most of the remaining land, with a number of apartment houses located in the southern part of the town. Many of the older homes around City Park also have been converted to apartments. Summer homes occupy the shoreline of East Lake, which extends into the farmlands further north and east. Circles drawn on a one-mile radius around each site help compare each site in terms of convenience. It seems obvious that Site 1 is better situated to serve people conveniently than Sites 2 and 3.

Site Comparison

Table 6-1 provides a method for comparing various items of information about the three locations. While an actual case might warrant more information, the factors would remain similar. Such tables provide a convenient way for summarizing data and making a relatively simple comparison. They also can be more convincing than information communicated verbally.

Another approach for comparing sites is to score the sites using weights—or multipliers—and ratings assigned to each criterion for each site. It's important that the site selection criteria be clearly defined and that the weights assigned to them be acceptable to community.

Figure 6-2

Hypothetical Library Site Map

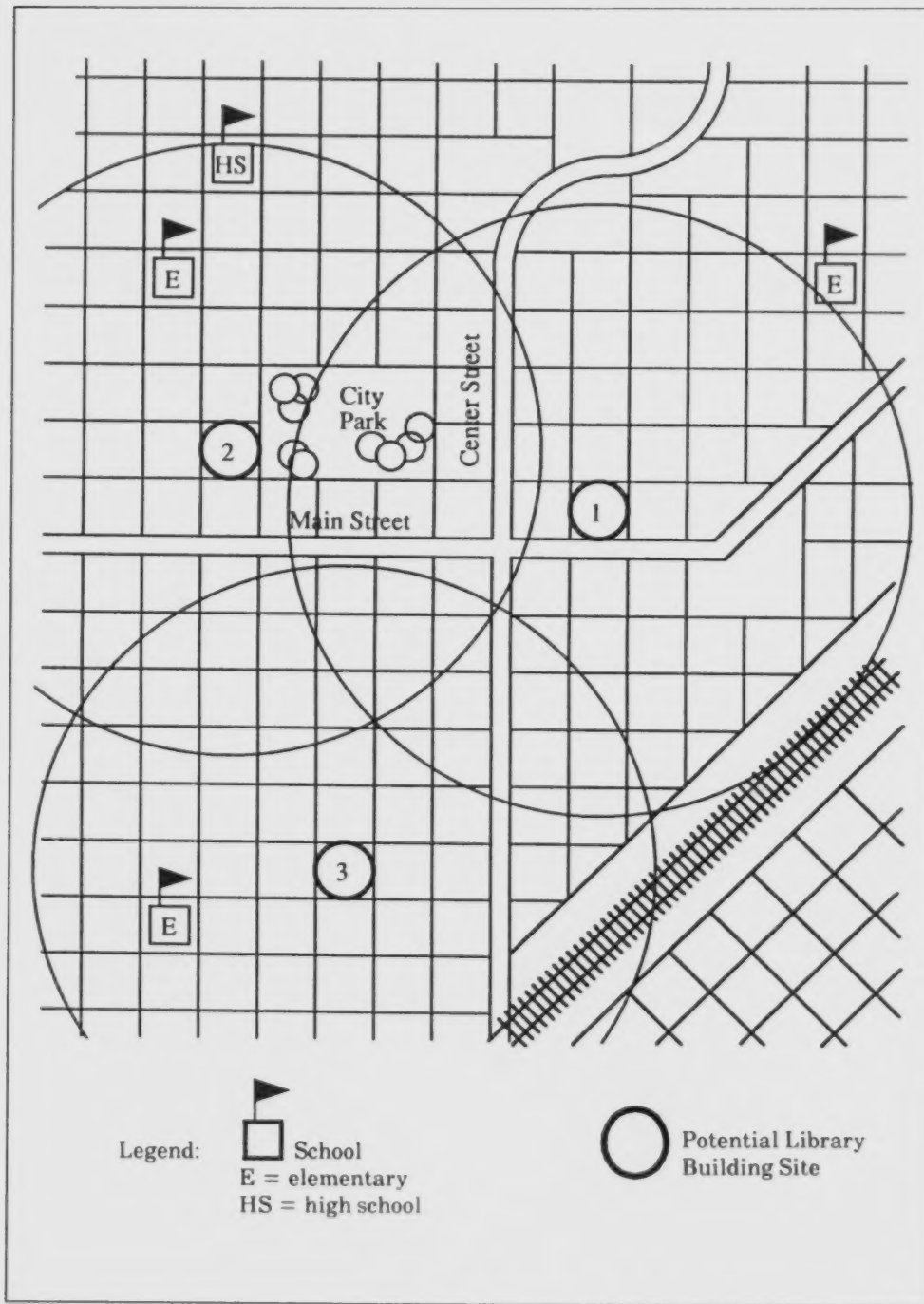


Table 6-1

Summary of Site Findings

Criteria	Site 1	Site 2	Site 3
Distance from Main and Center Streets	1 block E	5 blks. W & 2 blks. E	6 blks. S & 3 blks. W
Accessibility to pedestrians: Children Young Adults Adults	Good Good Good	Good Good Fair	Fair Poor Poor
Accessibility from residential areas (by quadrant) NE (40% of pop.) NW (35% of pop.) SE (14% of pop.) SW (11% of pop.)	Good Good Fair to good Good	Fair to poor Good Fair Poor	Poor Poor Good Good
Size of site (in sq. ft.)*	30,000 (Adequate)	35,000 (Adequate)	25,000 (Adequate)
Shape of parcel	Rectangular	L-shaped	Square
Availability	One owner, local; lot not on the market	3 owners; 1 lot for sale, 1 in probate, 1 absentee owner	2 owners; 1 lot for sale, 1 to be used for new home
Orientation/Exposure	South	East	West or north
Topography	2% drop from NE corner to SW corner	Level except one corner has a 6 ft. depression covering 1800 sq. ft.	Center of lot has a 5 ft. depression; possibly an old creek bed
Hidden obstacles	Water main crosses rear of property; may need to reroute; extensive basement under existing building	None known; existing residence has a partial basement	Owners report seasonal flooding in basements
Special considerations	Site of town's first store and post office	Panoramic view of park	Heavy trucking through neighborhood to local industries
Parcel value	\$75,000	\$67,500	\$65,000

*24,000 sq. ft. minimum needed—12,000 sq. ft. for building, 6,000 sq. ft. for future expansion, and 3,500 sq. ft. for on-site parking, plus setbacks.

Table 6-2

Sample Weighted Scale for Site Selection	
Site Selection Criteria	Weight
Group 1: Essential A. Easy to access by car, bicycle, public transportation, and on foot B. Sufficient land for building, parking, public & service entrances, and future expansion C. Space for off-street parking	Multiply rating by 5
Group 2: Important A. In or near a retail shopping area B. Easy, safe ingress and egress of motor vehicles C. Topography and soil conditions suitable for construction D. Site relatively free from nuisances, such as noxious odors, distracting noise, or an unsightly view	Multiply rating by 3
Group 3: Desirable A. Site clearly visible B. Additional off-street parking nearby to handle overflow C. Site relatively obstacle-free	Multiply rating by 1

Table 6-3

Applying Site Selection Criteria				
Criterion	Weight	Rating/Score		
		Site 1	Site 2	Site 3
Accessibility	5x	4/20	2/10	4/20
Sufficient land	5x	4/20	5/25	3/15
Parking	5x	5/25	5/25	5/25
Near shopping area	3x	5/15	2/6	3/9
Safe vehicle access	3x	4/12	5/15	1/3
Topography	3x	4/12	3/9	2/6
Nuisance-free environment	3x	5/15	5/15	1/3
Visibility	1x	5/5	1/1	3/3
Overflow parking	1x	4/4	3/3	2/2
Free of obstacles	1x	3/3	4/4	1/1
Total		131	113	87

Table 6-2 shows a weighted scale for the site selection criteria being used to evaluate the three sites identified in the hypothetical example. Note that the largest multiplier is assigned to the most important criteria; the less significant criteria receive a smaller multiplier. An alternative method of weighted selection criteria uses a range of scores for each criteria, so the criteria deemed most important can accumulate a greater score.

Then, each criterion for each site receives a rating, which is determined by several individuals involved in the project. By having a group of people assess the sites, you can obtain a composite evaluation that reflects a number of views. This is especially helpful when a number of sites are being considered or when the community is seriously divided on which site to select. The hypothetical example used a ratings scale from 1 to 4, with 4 being the highest rating.

In Table 6-3, the weight for each criterion (from Table 6-2) and the rating for each site are multiplied together to learn the site's score for the particular criterion. These scores are added up at the bottom of the chart to reveal the total score for each site. The higher the score, the better the site. A blank work sheet of this chart appears in Appendix J.

This weighted criteria method provides a more systematic way of handling site selection than debating the general merits of various locations. It also avoids selection solely on the basis of cost.

Summary

The question of location is almost certain to spark community interest, and the public is quick to take sides. Many extraneous issues may cloud the facts and make rational decision difficult. Thus, the library administrator needs to carefully prepare data to make objective comparisons of various sites. The information should be presented in a written report using tables, charts, maps, and other figures to make comparison easier.

The matter of land cost often is blown out of proportion when placed against the community's ongoing investment in the library, the total value of the project, and public convenience over a period of years. It's important not to let land cost or any other factors compromise the goal of a location that is easily accessible to a maximum number of users.

Endnotes

1. Wheeler, Joseph L. "The Effective Location of Public Library Buildings." University of Illinois Graduate School of Library Science *Occasional Papers*, no. 52, July 1958.
_____. "A Reconsideration of the Strategic Location for Public Library Buildings." University of Illinois Graduate School of Library Science *Occasional Papers*, no. 85, July 1967.
2. *Ibid.*, p. 1.
3. *Ibid.*, p. 12.
4. Galvin, Hoyt. "A Public Library Site Symposium." In *Library Space Planning* (*Library Journal* Special Report, no. 1), pp. 15-27. New York: Bowker, 1976.
5. Robinson, William C. "The Utility of Retail Site Selection for the Public Library." University of Illinois Graduate School of Library Science *Occasional Papers*, no. 122, March 1976.
6. *Wisconsin Public Library Standards*. Madison, WI: Wisconsin Department of Public Instruction, 1987, p. 38.
7. All publications listed above contain site selection criteria. In addition, Robert H. Rohlf and David R. Smith's article "Public Library Site Selection" in *Public Libraries* (Summer 1985), pp. 47-49, contains several helpful observations.

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8. S. 32.02, Wisconsin Statutes.
 9. The library's role in the community as determined through the Public Library Association's role-setting exercise may identify some priorities and provide an additional source of guidance.
 10. Robinson, p. 11.
 11. *Wisconsin Public Library Standards*, p. 40.
 12. Holt, Raymond M. "Trends in Public Library Buildings." In *Library Trends* 36.2 (Fall 1987), p. 271.

The Dollars and Cents of Building Projects

7

To ensure adequate financing for the building project, the library administrator and board must understand the basic cost factors involved in the library building project, the major sources of funds, and the implications of the new or expanded building on the operating budget.

Estimating the Project Cost

Drawing an initial estimate of project cost is a key step. Several major components comprise the initial project budget. While additional costs may occur beyond those noted below, they are likely to be minor by comparison.

Land Acquisition

Land prices may be negotiated or may be set by a court of law as a result of the jurisdiction's exercise of its right of eminent domain. Sometimes such negotiations involve exchanges of property in addition to or in lieu of the actual cash settlement. In addition to the purchase price, fees may be due for appraisals, legal work, and so on. Because real estate markets vary from city to city and neighborhood to neighborhood, it is virtually impossible to predetermine the cost for site acquisition.

Construction

Until you receive the contractors' bids, you can only estimate construction costs. These estimates can be based on the cost of similar buildings currently under construction or recently completed in the community.

In the public arena, it's imperative that the cost estimates, especially the initial estimates, are accurate because the initial estimates tend to place a ceiling on the project budget. One of the most frequent errors in preparing an initial cost estimate is failing to convert net square footage into gross square footage. The result is funding sufficient to support a building that is only 65 percent to 75 percent of the desired size. Sometimes officials are frightened by cost estimates and try to rationalize lower figures. Such attempts are unrealistic and lead to difficulty.

Remember to include the cost of razing existing buildings on the construction site, if necessary. Demolition usually is done under a separate contract with a demolition firm for a negotiated price. The cost depends on numerous factors: the value of salvageable materials, the size and complexity of the structure(s) to be removed, the amount of dirt that must be moved to fill basements or other areas, and so on.

Architects and building contractors usually can provide a fairly accurate per-square-foot estimate. Cost consulting engineers also are available and, for a fee, will make a cost estimate based on the plans and specifications. Such estimates are particularly helpful on larger projects or where the project cost is crucial. Any estimate for construction cost also should contain a contingency fund—an allocation of funds to cover unforeseen circumstances that may arise during construction. No established rule governs the size of this

fund, although setting aside an additional 5 percent of the projected construction cost often is recommended.

Some preliminary estimates of project cost can be derived as early as the space needs assessment stage. As you determine more about the scope of the project and its implementation, these estimates can become increasingly precise. Typically, a project budget will be established no later than the schematic design phase. By that time most of the key decisions outlining the project will have been made, and the cost estimates can be directly related to the building's particular design. A cost estimate made at the conclusion of the schematic design phase often is used as the basis for securing financing for the balance of the project.

A general estimate of the project's cost can be made during the development of the building program statement. That budget probably will be based on recent per-square-foot construction costs for similar area projects, plus a factor for inflation, allocations for fees and furnishings, and the like. During subsequent stages in the development of the plan, the architect will be able to develop increasingly accurate estimates of construction cost, with the final cost estimate based on estimated required quantities of construction materials (concrete, sheet rock, and so on).

Each December, *Library Journal* reports on library construction costs for the previous fiscal year. While this report is not comprehensive, it can be useful for planning teams that are starting to define the cost of the project they are considering. Naturally, there is a wide variation in costs per square foot. The December 1989 report, covering projects completed during the fiscal year ending June 30, 1989, noted an average cost of \$91.40 for new construction, but individual project costs ranged from a high of \$676.19 per square foot to a low of \$2.30 per square foot. This disparity occurs due to differing geographic and economic conditions nationwide. Quality of construction for these new buildings also varies widely, and the data in *LJ* cannot reflect that factor.

Cost for remodeling existing structure typically can be estimated based on a proportion of the cost of new construction. A project involving an area of minimal remodeling can apply an estimate of 25 percent of the cost per square foot for new construction to the area of the building being remodeled. A moderate remodeling project can estimate remodeling costs at 50 percent of the cost per square foot for new construction. And a major remodeling effort would require 75 percent of the cost of new construction. In some cases, such as full restoration to a historic period, the costs for remodeling a building or a part of a building can approach or even exceed the cost for new construction.

In applying general estimates of construction costs, the planning team should understand how those estimates have been derived and keep in mind the limitations of such estimates.

Furniture and Equipment

Since the money to purchase furniture and equipment may come from the same source as the money for construction, furniture and equipment costs should be included in the project budget. Unfortunately, no formula exists for determining the percentage of total project costs that should be allocated for furniture. To some extent, the amount depends on how much of the existing furniture and equipment will be used in the new building. The quality of the items to be purchased and the quantity discount the library can command (sometimes as high as 50 percent) are further variables that affect the furniture allocation. Again, the library administrator can refer to recently completed library projects.

Over the six-year period FY1984 to FY1989, budgets for new construction projects reported to *Library Journal* indicated that the cost of furnishings for new buildings averaged just under 15 percent of the project's final construction costs, ranging from 10 percent to more than 20 percent of construction costs during that time. Additional assis-

tance and more current information is available from your state library agency or regional system and from the Library Technology Reports office at the American Library Association (ALA).

Professional Fees

Usually, the major costs of planning are those associated with the architect. However, where an existing structure is remodeled or expanded, various engineering specialists may be required to investigate and make recommendations. Their fees—usually on a per diem basis—are negotiated at the time their services are contracted. Likewise, fees for attorneys and library building consultants may be included in a project budget.

Architect's fees, which also are negotiable, typically average about 8 percent of the total project construction cost. However, on smaller jobs or especially complex jobs, the fee will be greater—10 percent or more. In very large construction projects costing several million dollars, the fee may be less than 8 percent. Some architects work on a lump-sum basis rather than a percentage fee.

Architects usually include mechanical, structural, and other engineering fees as part of their services. However, additional fees are incurred when the client or owner demands more than the customary services in these areas or requires specialists in fields such as acoustics, roof design, interior design, or graphics.

When a library building consultant is retained, the consultant's fee averages 1 percent of the total project cost or more, except on small projects where the fee may be a flat sum or a per diem.

You can use a preliminary estimate of 10 to 12 percent of construction costs for all professional fees grouped together.

Moving Expenses

The cost of moving depends upon the amount of materials and furniture to be moved and the distance involved. If the project is simply a remodeling job or a small addition, the staff often can accomplish the job with help from pages or others. Fairly sizable moves have been handled by volunteer groups such as service clubs. If the move does require a professional moving firm, the firm can provide an estimate you can include in the project budget. An alternative is to omit the moving costs from the project budget and absorb them as a part of the library's operating budget for the year.

Total Estimated Project Cost

The total estimated project cost is the sum of

- site acquisition, including possible demolition and site preparation costs;
- construction and/or renovation, including contingencies;
- furniture and equipment;
- professional fees; and possibly
- moving.

Prepare the cost estimate carefully and document it fully before making it public. Once you announce the estimated cost, it will be difficult to modify it without losing credibility in the eyes of the public and officials.

Project Funding

Most library building projects are funded from a variety of sources, and all kinds of combinations are possible. The important thing is to choose the source or sources that provide the amount of money needed at the lowest cost. You may request assistance from your state library agency or regional library system; bankers or financial consultants may offer further advice.

Municipal Appropriations

In Wisconsin and nationwide, the greatest share of funding for public library construction comes from local tax dollars. Between FY1984 and FY1989, local public funding accounted for 76.8 percent of all public library construction funding nationwide. Federal sources accounted for 6.6 percent, state sources accounted for 7.8 percent, and gifts and donations accounted for 9.0 percent.¹

Bonding

The most common source of municipal appropriations is the bond issue. According to the Wisconsin Constitution, local governments may incur indebtedness in an amount up to 5 percent of the value of the taxable property within their jurisdiction. The common council or the village board may choose to initiate a referendum on whether to issue bonds for the library's project. Alternately, local residents may petition to place the question to a vote. The referendum may be binding or advisory in nature. Chapter 67 of the Wisconsin Statutes provides detailed regulations and procedures on bonding for all jurisdictions.

Preparing and selling the bonds is a sophisticated procedure and communities and libraries often need special bond counsel to ensure the bonds' sale at the best possible terms. A financial consultant or the municipal finance officer can help the library assess the projected growth of the jurisdiction's taxable property and advise on recommended terms for the bond issue. A retirement schedule for the repayment of the bonds is devised. The bond issue must be advertised and the bonds sold to one or more financial institutions.

Staged Financing

Current revenue—often drawn from annual municipal appropriations—also can be used for staged, or pay-as-you-go, financing. The concept of staged financing refers to procedures that permit a community to purchase something over a short span of years from current revenue. Sometimes a particular source of revenue, or part of the tax rate, is allocated for this purpose. In the case of a library building project, for instance, the first year's revenue might be used to purchase a site. In the second year, fees could go toward paying the architect and others for planning the building. Planners could then schedule construction to fall into two different fiscal years, with the result that the total project cost could be spread over as much as four years.

Depending upon the local tax base and the project cost, this method of funding can be attractive. While the immediate burden on the taxpayer may be somewhat greater than if the project costs are spread over a longer period, staged financing has the advantage of eliminating interest charges. Where possible, explore this source carefully, especially for smaller projects with limited costs. Larger projects are likely to require some other means of funding, most likely bonding. The pay-as-you-go method, however, can be used to finance the preliminary stages of a larger project, and funds from bonds or other sources

can then pay for actual construction. In some states, a variation on pay-as-you-go method for financing construction is to retain a portion of each year's operating budget setting it aside in a capital reserve fund.

Loans

Libraries and municipalities also may take out loans to help finance the cost of construction. Like bonding, this alternative is subject to municipal indebtedness limits, but may offer some flexibility for certain projects. One source of low-interest loans for Wisconsin public libraries is the State Trust Fund Loan Program, administered by the Bureau of Commissioners of Public Lands.

Lease/Purchase Plans

Sometimes a private developer may be approached or may offer to construct a building to meet the library's needs, and then lease it to the library. This strategy is discussed for branch locations more often than for central library facilities. For instance, a developer may feel that a branch will attract more people to stores and services in a shopping center. One advantage of this option is that it allows the library to improve its facilities through payments from its operating budget without incurring additional debt. Of course, with a lease the library retains less control over the maintenance and disposition of the facility. In any negotiations with a developer, the library board should make certain that the library's space and environmental needs will be met by the proposed plan.

Federal and State Grants

Title II of the Library Services and Construction Act (LSCA) provides federal funding to support local library construction. LSCA Title II was created in 1965 and funded through 1973. There was a ten-year hiatus, after which Congress reauthorized LSCA Title II under the Emergency Jobs Bill of 1983. Since 1985, Congress has renewed appropriations annually, they usually run between \$20 million and \$25 million (\$18.9 million in 1990). State library agencies administer the LSCA Title II program, and each state library agency has developed its own procedures and priorities for allocating these federal construction grants, within the broad regulations issued by the U.S. Department of Education.

Funding for LSCA Title II is limited, and many states place caps on the amount of funding that can be allocated to any one project. In Wisconsin, the current maximum is \$125,000. Library administrators and boards considering this federal funding source also should be aware of the various regulations attached to the LSCA Title II program and their possible impact on the costs and administration of the project. These regulations include prevailing wage rate determinations, compliance with the National Historic Preservation Act, and compliance with the National Uniform Relocation Assistance and Real Property Acquisitions Act, to name just a few.

LSCA Title II is not a certain funding source, nor is any federal grant program. Funding must be renewed each year. Each year funding for particular programs may be cut or eliminated. Furthermore, application for Title II funding in Wisconsin and many other states is a competitive process, and there is no guarantee of securing a grant.

Other federal programs have been used to finance library building projects. However, these are not direct aid programs, and they require some expertise to qualify for funding. Nonetheless, it's wise to explore all possible funding sources. For instance, libraries in communities with active Urban Development Agencies may qualify for funds through the

Department of Housing and Urban Development; contact the HUD office in your region for information. Federal programs change constantly and new funding sources come and go. The Division for Library Services, within the Wisconsin Department of Public Instruction, can help you keep abreast of these funding opportunities and their requirements.

Although Wisconsin has no such program in place, several states provide grants of state funding for public library construction. These often are modeled after LSCA Title II and administered in parallel with LSCA Title II.

Gifts and Bequests

Gifts and bequests from local citizens or businesses have financed library building projects in some communities. However, as library building requirements grow and the cost of construction continues to increase, fewer libraries can rely on gifts and bequests. Successful fund-raising campaigns benefit from excellent contacts, patience, creativity, and care to avoid money given with strings attached. Even though a major gift or bequest may not be forthcoming, every library should arrange for the accumulation and use of smaller donations. Often these funds enable the library board to purchase items the library would otherwise have to forego. Specific gift campaigns can sometimes be set up to purchase works of art or certain furnishings. Friends of Libraries groups often spearhead communitywide efforts to secure public donations.²

For Wisconsin libraries, there is one important distinction between private funding sources such as these and public appropriations: s. 43.58(1), Wisconsin Statutes, gives a board direct control over gifts and bequests, and such funds may be set aside in a capital reserve fund and accumulated over a period of years in anticipation of a major building project.

Public Subscription and Donations

When construction costs were lower and library requirements simpler, occasionally a building could be funded from public subscription and donations. The idea of a free-will donation of a few dollars per community resident may seem a logical and simple way to raise funds. Unfortunately, experience shows otherwise. Except for the very smallest projects, this is a difficult and impractical method.

Budgetary Implications

A building project carries financial implications in terms of long-term operating costs as well as capital costs. Too often these implications are not carefully thought through, resulting in unpleasant surprises later on. The library administrator must make a continuing study of the impact a building project is likely to have on the operating budget, beginning with information in the building program statement that relates to changes in personnel requirements, operations, services, and so on. Such preliminary figures need to be revised after architectural work has been completed. At this point, the library administrator should be able to determine fairly accurately the probable operating costs.

First Costs

First costs are the amounts of money spent to produce the finished library building, furnished, equipped, and ready to open. Sometimes this is the only cost given consideration. Paul Silver, a principal in the firm of Gruzen and Partners, AIA, New York, says:

... There is a terrible tendency to design a building on the basis of "first cost" and not to look at operating costs, maintenance costs, and the cost to change. The various alternative solutions can cost more initially, but may cost less to run; or alternate systems could cost less initially and more to run. All of these factors have to be weighed and someone has to make a judgment.

I think it is the professional's responsibility to present the facts and make a recommendation which he feels he would like those people who are in the decision-making role to accept. If they don't agree with him, they must give him direction.³

Even more important, however, are the continuing operating and maintenance costs that must be budgeted for from the date of opening on into the future. Referring to college and university library buildings, Keyes Metcalf identifies five factors that increase costs and notes that any planning that reduces these costs is worth the price:

1. Those factors that deal with the construction itself which are affected by the type and cost of materials used, the amount of outside wall that it takes to enclose the desired area, and the size selected for column spacing.
2. The percentage of architectural, or nonassignable, space that cannot be used for library purposes; this space includes that occupied by walls, columns, ducts, and pipes, as well as by lobbies, corridors, stairs, elevators and lifts, mechanical rooms, and rest rooms.
3. The utilization of the space that is available for library purposes.
4. Ceiling heights.
5. Load-bearing capacity throughout the building.⁴

Make every effort to avoid looking only at first costs. Long-term values are equally important, and it's the library administrator's responsibility to call this to the attention of the governing body when decisions must be made.

Factors Reflected in Operating Costs

Because of the inefficiencies of older buildings, it is sometimes assumed that a new or remodeled building will be less expensive to operate. This is seldom true. For instance, the new or remodeled building almost always has a significantly increased area to be lighted, cooled, or heated. Considering these factors and predicting their budgetary implications is the library administrator's responsibility. Increased budgetary requirements against the community's future financial resources also need to be balanced. A closer look at several major factors follows.

Personnel

Planners often assume that current library staff will be sufficient for the new library building; this is seldom true. New library facilities usually have more area to supervise and greater user needs. In fact, as the library attracts new users and existing users make greater use of the facility, user needs can increase 25 to 75 percent. If current staff

members are working at or near capacity, there is little room to absorb such a significant increase in the workload. Thus, additional staff will be needed.

Another factor determining personnel needs is the number of stations in the new facility. If there is an increase over the current number, more personnel will be needed to staff those stations. Depending on employee schedules and off-desk assignments, each station will need two or three staff member to operate it 50 to 60 hours per week.

Additional custodial help is another area planners often overlook. Current practice suggests one custodian for every 10,000 to 15,000 square feet of building. However, the exact amount of space that one individual can adequately clean and maintain depends on the library's standards and other factors. Will the custodian have to clean large areas of glass, maintain expanses of hard-surfaced flooring, keep the furnishings dust-free in an unfiltered, air-conditioned building, and do gardening? If so, the custodian will be hard pressed to meet the 10,000-square-foot requirement. For libraries that rely on part-time help or pages to perform custodial duties, acquiring more custodial effort may be a special problem. Contracting for custodial service can increase the complexity of the arrangements as well as the cost.

Utilities

Anticipate higher utility costs for the new library facility. Even if the square footage increases only slightly, improvement features—such as additional lighting and central air conditioning—consume more energy. While consulting engineers and utility representatives can estimate probable utility costs, several factors, including abnormal weather and unfamiliarity with new equipment makes it difficult to determine the building's initial utility expenses. Some general current-dollar estimates of these costs are as follows: 25¢ to 30¢ per square foot for heating, \$1 to \$1.25 per square foot for electrical service, and 10¢ to 12¢ per square foot for water and sewer.

Supplies

Custodial supplies also are likely to cost more. More items and square footage will need to be cleaned and maintained. New wall and floor coverings probably require special, and maybe more expensive, cleaners or treatment.

In addition, a library with a new address will need to revise its letterhead and any other necessary forms.

Increased library use means greater wear on its collections. As a result, more books will need repair, rebinding, or replacement. While collection maintenance expenses may seem insignificant, they must be included in the new operating budget.

Collections

Along with the growing patronage goes the demand for more periodicals and new acquisitions, especially audiovisuals. The additional shelf, display, and storage space for a new facility supports such demand. And now, it is possible to develop or expand the backfiles, in either microform or hard copy. These items can be included in a library's materials acquisition program. However, an acquisition program's cost can exceed what the library budget can afford in a single year. So, it may be necessary to extend the program over three to five years to reduce the annual expenditure.

Insurance

Another cost affected by the building project is the library's insurance. While improved conditions may result in lower rates, this can be more than offset by the increased value of the building and its furnishings. Consult an insurance agent for estimates based on plans, building costs, and so on.

Equipment Rental

Many new or remodeled libraries acquire equipment, such as copying machines and circulation charging equipment, that was unavailable previously due to space or electrical limitations. Ask an equipment dealer about the costs to buy or lease the equipment and include the expense in the library's budget.

Furniture and Equipment

Often, the library's furniture and equipment needs exceed the building project budget, so they must be purchased with the annual operating funds. These items may be acquired in the first year's budget or be part of a longer term purchasing program. For the first several years, furniture and equipment expenditures may take up more than is normally allocated.

Automation

New library facilities offer opportunities to implement new technologies. Automated systems costs can be included with the furnishings and equipment in the library's building program budget. This means that first costs for an automated system can be paid for through the bond issue or other financing strategies. Ongoing automation costs—including hardware and software acquisition, maintenance agreements, telecommunication costs, and supplies—should be included in the operating budget.

Maintenance Agreements and Contracts

For a period of time, the library will receive free maintenance, repair, and replacement of the building's structural systems and major pieces of equipment. But after these warranties expire, the library will either have to add their maintenance costs into the budget or find other means of serving them. Repair and maintenance agreements may be the solution. Without such insurance, the library may face large bills to provide essentials such as air-conditioning and elevator service. Ask the architect for help in gathering such figures on maintenance costs, and incorporate them into the budget.

Consider contracts and maintenance agreements for other equipment, including copiers, computers, and so on. Many automation vendors won't sign a contract with a library unless the contract contains a comprehensive maintenance agreement.

Preparing for Cost Implications

After determining the probable operating costs, translate the total operating budget projected for the new building into revenue requirements. How this will be done depends on practices in the local community. If the library is financed directly by a specific tax rate, then the increase in tax rate on the probable assessed valuation base will be appropriate. If the library is financed by a direct appropriation, either a hike in the overall municipal appropriation or the loss of funds for other purposes is indicated.

If a ceiling has been placed on library expenditures regardless of need, then the library administrator will be faced with serious decisions, and possibly an austerity program, until financial resources can match expenditure requirements. Aware that the public looks forward to a fully operational new library, public officials should move positively to meet budgetary requirements.

Legal Authority for Constructing a Library Building

The library board has legal authority for purchasing, acquiring, and/or erecting a library building, according to s. 43.58, Wisconsin Statutes (see Chapter 5). When questions arise over the extent of authority, seek assistance from the city or county attorney's office.

Concern for funding needs and financing strategies should underlie all the library's initial planning. As representatives of the public, the board carries responsibility for the success of the financing strategy. The librarian, with the board treasurer, usually is responsible for the daily monitoring and administration of the project funding. The municipality's finance officer also may become involved. In some cases, libraries may want to retain a financial consultant to help with financing strategies.

Summary

Library administrators contemplating a library building project must be fully aware of the various cost factors, such as land acquisition, construction, furniture and equipment, professional fees, and moving. There are various funding sources, each with its advantages and disadvantages. Both the market and the regulations that govern the availability of these financing options fluctuate. For this reason, the library administrator has a special obligation to keep all facets under continuous review until a final decision is made. Before making a choice, the library administrator will need to become informed about each funding source as it relates to the community's traditional pattern of financing public buildings. Assistance is normally available through local governmental finance officers and your state library agency.

Endnotes

1. Fox, Bette-Lee, et al. "Ruins Among the Splendor: Library Buildings 1989." In *Library Journal* 114.20 (December 1989), p. 61.
2. A useful introduction to fund raising for libraries is found in *Fund Raising for the Small Library* by Pamela G. Bonnell (Chicago: ALA, 1983) and in *Fundraising for Nonprofit Institutions*, edited by Sandy Dolnick (Greenwich, CT: JAI Press, 1987).
3. Holt, Raymond M. *An Architectural Strategy for Change*. Chicago: ALA, 1976, p. 64.
4. Metcalf, Keyes D. *Planning Academic and Research Library Buildings*. 2nd ed. by Philip D. Leighton and David C. Weber. Chicago: ALA, 1986, p. 276.

Architectural Implementation and Development

8

This chapter describes the steps involved in converting a building program statement into architectural drawings and specifications for the building contractor. Each step becomes more complex as planning proceeds. Because of this, you should review and analyze the plans at the end of every major stage and make any necessary changes at that time.

First Steps

The architect begins with a thorough review of the goals of the building project. A design architect handles this phase of the program, and one or more meetings will be held with the project team to assist in the interpretation of the building program statement and to answer questions.

Next, the architect works out a schedule for the design phase. This schedule provides dates for the completion of the three major planning phases—schematic design, design development, and construction documents—and a target date for placing the work out to bid. As the plans develop, the architect incorporates into the schedule the contributions from structural, mechanical, and electrical engineers as well as the work from any other specialists.

Schematic Design Phase

The first major phase of design is known as the schematic design phase. During this period, the architect assimilates the building program. If the building program statement doesn't include relationship diagrams, the architect may convert the narrative of the program into detailed bubble drawings, trying to conceptualize the library's functions as a logical pattern. He or she also makes an analysis of space requirements to give a sense of dimension to the various library areas. These will be combined in an evolving series of drawings to produce the first schematic or single-line drawings which delineate the outlines of the building and relate it to the site. As these schematic plans develop, many changes are likely to occur as the architect tries various solutions. The schematic drawings include floor plans that show the major areas of the building, several exterior elevations to indicate how the library will appear from various vantage points, and a simple set of specifications outlining what basic materials and structural concepts to use. A scale model of the building can be very helpful in this stage of the project since it provides a three-dimensional concept of the building. A model also can help promote the project to the community. However, preparing a model usually is not one of the architect's customary services and often requires an additional fee.

Among the important decisions the architect makes during this early stage will be the dimensions of the structural module, or bay. Typically, all but the smallest library buildings are designed around a structural grid or framework of columns that support the walls, floors, roof, and beams tying the columns together. Think of the steel skeleton that is visible as a medium-sized or larger building is being erected. The structural module is the grid based on the dimensions found between support columns. The module becomes the governing unit of measurement for the building.

The dimensions of the module are particularly important in libraries because standard shelving is constructed in three-foot lengths and stack ranges are in multiples of

three feet. Unless the column spacing accounts for this, considerable wasted space as well as awkward stack configurations can occur. Since architects may not be fully aware of this relationship for libraries, you might want to direct their attention to an excellent discussion of this subject (including tables) in *Planning Academic and Research Library Buildings*.¹

While the structural module refers specifically to the distance between support columns, forming the module also may influence or control dimensions in larger column-free spaces, especially where they adjoin areas containing columns. Bays that are too small result in additional floor space being occupied by columns, while oversized bays may require expensive structural materials and construction techniques.

It's important that the architect provide an initial layout of furniture and equipment so you can compare the plan's capacity with the requirements of the building program statement. The columns that delineate the modules or bays in the building also affect the spacing of furniture and shelving, and it's important to examine this as early as possible. Changing the size of the bays may be extremely difficult later when the structural system has been fully designed and the columns dimensioned to support the structure.

Although some architects may prefer to postpone a preliminary layout of furnishings until a later stage, you should specify in the contract that the architect needs to create the initial furniture layout during the schematic phase. If you've decided to retain an interior designer, you should have selected one by this time so that person has the opportunity to test specific furniture layouts against the evolving schematic design.

At this point, it's crucial for the project team to analyze the traffic to be accommodated: the public, library materials, and staff. The best way to do this is to trace the traffic flow paths on sheets of plastic overlaid on the floor plans. If you use a different color to represent each type of traffic, potential trouble spots will be revealed when you superimpose the three overlays. Traffic conflicts are a major source of irritation and delay in library operations. It's easiest to resolve these conflicts during the schematic design phase.

As another part of this phase of architectural implementation, the architect should provide outline specifications that identify the basic building materials and systems proposed for the structure. This is necessary since such items provide a further basis for arriving at an estimated cost for the building—the final step in the schematic design phase.

As the project team comes to consensus regarding the basic design and outline specifications for the library, the architect will be able to provide the first meaningful estimates of construction costs. Prior to this point, cost estimates were based on construction costs per square foot. Now, the architect can start to apply more systematic estimates, based on a particular design and its specific materials and mechanical systems. Usually, it is the construction cost estimate made at the conclusion of the schematic design phase that forms the basis for the overall project budget and directs the consideration of funding strategies. Because this cost estimate will likely become the upper limit of the project budget, the project team should be sure that the estimate is a reasonable one.

Since the schematic design phase is the conceptual or creative stage in the design process, it is of particular interest to the project team. The art of reducing square-foot requirements and space relationships into a well-organized and efficient building is the architect's unique and primary contribution. Make every effort to provide an atmosphere that will encourage the architect to approach the design with full creativity and imagination. The board can always reject a concept if they don't like it. Imposing artificial or unnecessary strictures at this point, however, will limit creativity and impede performance. Extra time spent in the schematic design phase usually pays dividends in the form of better design and fewer changes in later stages.

Design Development, or Preliminary Drawings, Stage

After the project team and other public officials (certainly the full library board and possibly the village board or common council) approve the schematic design concept, the architects resume work. The effort now is directed toward refining the schematic plans. Interior dimensions and spatial relationships are modified as the plan is reviewed in conjunction with further elevation and engineering studies. These may be supplied by the architect or by mechanical, structural, or electrical engineers retained by the architect. The building specifications are fine tuned, and a more detailed cost estimate is made as the design development stage is prepared for approval.

During this period, the project team must give increasing attention to detail. They should carefully read the plans as they evolve and visualize the library operations in the projected surroundings. The project team and the library administrator, will have to make many decisions—some may require modification of certain concepts established in the building program statement. For instance, working out the engineering requirements of the heating, ventilating, and air-conditioning systems may require adding a chase, or an enclosed passage, for ductwork in a certain location, which in turn will necessitate a change in the furniture layout. Such changes should be recorded in the minutes of the project team's meeting and reported to the board.

As evidence of having completed this phase, the architect usually submits the following for formal approval: a set of drawings that include complete floor plans, elevations, and sections throughout the building to show basic structural detail; specifications that describe the materials to be used in construction and the mechanical and electrical systems; and a more detailed cost estimate.

In addition, the architect may submit a color rendering if not provided as part of the schematic phase, and/or a model of the project (color renderings, like models, typically require an additional fee). The project team should formally review these items, list their questions and comments, make revisions, and submit the package to governing officials for approval.

Working Drawings and Specifications

When the design development drawings have been approved, the architect proceeds with the final refinement of the plans. Every facet of the structure must be drawn in sufficient detail to provide the contractor with all the information necessary to erect the building. The number of sheets in the set of drawings multiplies as the various engineering consultants complete their contributions. While before it was possible to consider several possible solutions to a given design problem, the growing interdependency of the different aspects of the plans now limits the planning team's options to address any necessary changes. Each new design issue that arises will pose a difficult decision. However, if the project team reviewed the evolving design carefully during the earlier stages of the work, few new issues should surface as these final drawings are prepared.

The project team will continue to monitor the progress of the drawings, directing special attention to an increasingly narrow set of issues. The placement of each and every electrical outlet becomes an important consideration. Since the placement of furniture and equipment often determines the location of electrical outlets, it is imperative to have a master furniture layout.

In addition, every workroom and office must receive attention. Which ones should have built-in cabinets? Which will have movable furniture? Is special lighting necessary? Are there special provisions for data transmission? Are doors and other openings in the best possible locations? Do offices and workrooms offer an efficient working environment? Can staff move from one area to another without walking through intervening

offices and work are? These and countless similar questions are part of the analysis process.

In the working drawings, the architect completes elevations of the interior and exterior walls in the building, providing an opportunity to further visualize all the areas. Descriptive lists called "schedules" detail the size and type of doors selected for each opening and the kinds of materials and finishes to be used on walls, floors, and ceilings, including the colors recommended for each. The finish schedule often is supplemented by a color and finish palette that includes swatches of the suggested wall coverings, and paint colors. This is an exciting step because the project team can begin to visualize the new structure in color and in texture.

The complete set of working drawings for most projects consists of sheets that cover both architectural and engineering drawings. Architectural drawings will be numbered A1, A2, A3, and so on; structural drawings will be numbered S1, S2, and so on. The cover sheet usually includes an index to the drawings, the location of the library site on a community map, and a legend. While the specific order of these drawings varies from architect to architect, the sets normally include sheets with the following codes:

- A = Architectural design, including the floor plans, elevations, sections, doors, finish schedules, and architectural details
- D = Demolition, i.e., interior structures to be removed
- E = Electrical; shows lighting, wiring, data transmissions, and telephone information
- F = Furniture; presents the layout of furniture, casework, and carpet-laying plan
- M = Mechanical; depicts the heating, ventilating, and air-condition systems (also the plumbing for smaller jobs)
- P = Plumbing; represents piping runs and fixtures
- S = Structural, which is the framing details, foundations, beams, and floor slabs
- FP = Fire protection; displays location of piping for sprinklers and sprinkler heads
- SL = Landscaping
- SP = Site plan; describes positioning of the new structure on the site
- SS = Site survey information; includes topography and the location of existing structures and utilities

The number of sheets will vary depending on the design requirements, the site, and other factors, as well as the individual architect's methods. However, for a project of 8,000 to 10,000 square feet, expect the working drawings to number 20 sheets or more. A 25,000-square-foot building may require 40 to 50 sheets, while a 50,000-square-foot building may require 75 to 100. The librarian needs to be thoroughly familiar with each sheet.

The specifications during this period grow from a few pages to a large volume, often consisting of several hundred pages. In fact, large projects may require specifications that run to multiple volumes. These specifications describe in detail the conditions and requirements of the construction contract, the scope of work broken down by trade, and each item of material and equipment, with brand names specified where necessary.

Library administrators sometimes overlook the importance of the specifications. While they can be tedious to read and much is of limited interest, thorough familiarity with the specifications is in order because they include vital information and may take precedence where a conflict between the plans and specifications occurs.

The completed specifications begin with the bid forms and the contract documents, usually including the standard American Institute of Architects (AIA), General Conditions of the Contract Document A201, plus any specific additions or amendments governing the performance of the building contractor. Following this section, the technical sections are inserted according to division. The technical sections describe in detail the acceptable materials for such things as concrete work, masonry, doors and windows, mechanical systems, and electrical systems. In the specifications' table of contents, the

various divisions in a typical set of specifications are listed. These may include the following topics:

Division 1	General Requirements	Division 9	Finishes
Division 2	Site Work	Division 10	Specialities
Division 3	Concrete	Division 11	Equipment
Division 4	Masonry	Division 12	Furnishings
Division 5	Metals	Division 13	Special Construction
Division 6	Wood and Plastics	Division 14	Conveying Systems
Division 7	Thermal and Moisture Protection	Division 15	Mechanical
Division 8	Doors and Windows	Division 16	Electrical

A package of the complete set of working drawings, the specifications, and certain legal forms comprise the bid documents. Before these are approved, the library administrator must review the entire package to make certain that everything is correct as the package constitutes the exact provisions for constructing or remodeling the library.

Cost Estimates

Throughout the planning phase, the project team makes sure the project is staying within budget. As part of each phase, the architect submits a current budget for construction costs based on the latest estimate of the quantities of materials and the cost of labor involved. While this is part of the architect's responsibility, a second estimate often is desirable, especially for larger projects. Second estimates are available from construction cost engineering firms, which monitor the materials and labor markets and use this knowledge to derive estimates. Another service provided by such firms is value engineering, which helps determine the most appropriate solution to design problems in terms of first costs, maintenance, operational costs, and the expense of future changes. Being aware of such viewpoints can be worth many times the fee involved. Involve the construction cost engineer early in the project to maximize the value of the input.

Summary

Architectural implementation consists of a series of preliminary plans that culminates in a set of bid documents containing the working drawings and specifications. The project team members and the library administrator must carefully review each succeeding generation of drawings, making recommendations for change as necessary. Issues for consideration during the project team's review is the subject of Chapter 10.

The specifications also are important and merit a careful reading. You can compare the architect's cost estimates with those made by a construction cost engineer, who also can assist in value engineering to achieve the best possible balance between first costs and future costs for maintenance, operations, and future changes. The library administrator should retain a set of bid documents for use during and after construction.

Endnotes

1. Metcalf, Keyes, D. *Planning Academic and Research Library Buildings*. 2nd edition by Philip D. Leighton and David C. Weber. Chicago: American Library Association, 1986, pp. 329-344, 405-415, 552-554.

Interior Design and Selecting Furniture and Equipment

9

Interior design is an important part of every building project. The furnishings and the way it is arranged, as well as the colors and textures of walls and floors, affect the public's attitude toward a building. Interior design also has an impact on maintenance costs. Therefore, the library administrator and the project team need to have an understanding of this subject.¹

The Library Interior—Who Is Responsible?

The interior designer works with the architect on the layout of furniture and equipment as well as the choice of materials, furnishings, and equipment. Where necessary, the designer recommends modifications to existing furniture designs and suggests new items of furnishings for approval by the project team.

The decision of who is responsible for interior planning needs to be made early in the building project. In many cases, the architect's experience and training—and preference—may make him or her the logical choice. However, because of the highly specialized knowledge required and the large number of materials, fabrics, coverings, and furnishings now on the market, some libraries choose to use a specialist instead. Many architectural firms maintain an in-house staff of interior designers.

If you do use an interior designer, he or she should be approved by the architect. Normally, an architect can recommend several firms. The selection process is similar to the one for selecting architects. The person selected should meet the requirements of the American Institute of Interior Designers.

Since the architect and the interior designer work in complementary areas, their responsibilities need to be clearly defined to avoid overlap and gaps. The interior designer's fee will be repaid many times by a superior selection of furnishings and a more pleasing environment. In many cases, the money the interior designer saves on furnishings more than makes up for the fee.

The Interior Design Process

Whether furniture selection is the responsibility of the library administrator (as it may for a small project), the architect, or an interior designer, each must follow the same basic steps: inventory existing furnishings, decide what furnishings to purchase, select colors and textures, and choose individual items.

Inventory of Furniture and Equipment

When taking an inventory of library equipment and furniture, note and describe each item, its condition and its location. A system of inventory numbers works well for this task. If the furniture and equipment don't have inventory numbers, it probably would be worth the time and effort to tag them before starting the inventory process. It's best to attach the inventory number underneath the item so it won't be removed accidentally.

Each item also should be evaluated on if it is to be moved as is, refurbished, or replaced. Most libraries develop a value scale to rate an item's condition, from excellent to marginal to unacceptable. An inventory/evaluation form is provided in Appendix K, an example of a completed form is presented in Table 9-1.

Another option for logging inventory information is to use a database program.

Table 9-1

Sample Furniture Inventory/Evaluation Work Sheet

Item No.	Item	Location	Description	Reuse as Is	Replace	Refinish or repair	Undecided
124	Table	Children's room	36" diam.; oak finish; top badly cut	X		Refinish	
125	Desk	Children's room	42" x 24" single pedestal; walnut; legs splintered & drawer fronts split		X		
126	Shelving	Children's room	14 double-faced sections; metal; 42" tall; blue enamel	X		Paint to match new color scheme	
127	Vertical file	Children's room	Jumbo size; 3-drawer; oak				

Interior Layouts

In the schematic phase, the interior designer prepares the layout drawings and specifications for the interior work and furnishings. These layouts are used to confirm that the room and areas shown in the schematic design can accommodate the furniture and equipment described in the building program statement. Since the interior layout can enhance or diminish the effectiveness of the schematic plan, it is important to test the layouts against the schematic design. Ideally, the furniture should be arranged so that it makes an area easy to supervise, facilitates use of the library's collections and services, and creates an appealing environment. For instance, several small groups of seating interspersed among the collections is preferable to a single, large area.

To expedite layout planning, the interior designer can construct a simple model with scale furniture, which is available from the state library agency and many regional library systems. Such models provide a quick way to experiment with various arrangements. Nowadays, designers are likely to use computer-assisted drawing (CAD) programs, some of which include three-dimensional rendering capabilities. A three-dimensional rendering will provide project team members with a better understanding of how a space will look with all the furniture installed.

To determine how much furniture to purchase, compare the inventory of existing furniture with the inventory of projected needs taken from the finished interior layout. Individual pieces and small quantities of older furnishings often are used best in office and workroom areas. Larger quantities of old but serviceable shelving, for instance, can go in storage areas and workrooms. Similarly, old but usable card catalog cabinets frequently are relocated in the cataloging workroom or in an area needing a separate catalog, such as the local history and genealogy collection. When you must use older pieces in public areas, place them in areas where differences in styling are inconspicuous.

Selection and Coordination of Colors and Finishes

The colors and finishes throughout the building should be coordinated carefully. The setting of the library, the style of architecture, and the size of the interior spaces all influence the choice of colors and textures. While using a single color throughout the building may be monotonous, a rainbow of colors can be disquieting. The psychological effects of color are a particular concern in staff offices and workrooms. Unless the library administrator is well-versed in color selection, an interior designer should help with color selection.²

As the initial interior design studies are completed, the interior designer will present a sample board of finishes, colors, and fabrics for consideration. The designer usually groups them according to area—in the adult or children's library, in the meeting room, the staff offices, and so on. The library board should approve this color board and transmit it to the architect so the architect can incorporate these recommendations into the building specifications.

When selecting finishes, decide whether you prefer wooden or metal shelves. Can the project afford the more expensive wooden shelves? Or will metal shelves with wooden end panels convey enough of the warmth of wood? What about materials for tables, carrels, and chairs? Should wood reading tables have plastic laminate surfaces to thwart attempts to carve graffiti into the writing surface? Will an upholstered chair stand up to use in an open, public environment? How long will the fabric last before the piece needs reupholstering?

Floor and wall coverings constitute a fast-changing area of furnishings. Ease of care and maintenance should be a major factor in selection, along with the utility of the particular covering. For instance, compare the somewhat higher initial cost of vinyl wall coverings with the long-term maintenance of painted walls, especially in areas exposed to heavy traffic. Similarly, a good grade of commercial carpet may have a slightly higher initial cost than hard flooring materials such as vinyl or linoleum tile. However, its warmth, acoustical properties, and ease of maintenance offer many advantages.

When selecting carpet, purchase enough extra yardage to allow replacement in heavy traffic areas around the entrance, circulation desk, and on the stairs. You can minimize soil and wear by providing ample matting at entrances, including a means for removing snow and mud from shoes. When extremely bad weather conditions persist, use plastic runners to protect the carpet near outside entrances.

Furniture Selection

Furniture selection is a complex procedure and is best left to those who understand furniture manufacturing and know what is available on the market. The difference between a library where furniture was chosen from a few catalogs and one furnished by an interior designer can be remarkable. Each item should be selected with regard for its suitability, appearance, maintenance requirements, color, texture, and price. The goal is to select furniture that fulfills the library's needs and is attractive, long-lasting, and easy to maintain. In addition, the furnishings should complement the design of the building.

The library administrator will want to inspect each item under consideration and, if possible, see it in actual working conditions. Often, the vendor or manufacturer will loan an item to the library for a brief period so it can be observed in use. Focus on the durability of various furnishings, the compatibility of color and texture, and features such as mar-resistant table- and desktops. Avoid highly reflective surfaces on desks and tables.

Furniture selection is time consuming and best done in large, wholesale showrooms. Wisconsin librarians are especially fortunate to be relatively close to the Chicago Merchandise Mart, which has one of the world's largest displays of furniture. The architect or interior designer may be able to arrange for access to the showrooms and provide some guidance. Because the selection of furniture and equipment is a complex task, it must begin early in the project.

In addition to determining quality, perhaps the most difficult decision facing the novice in furniture selection is deciding on style. For this reason, library administrators and boards often prefer to select a single, particular line of furnishings from one library furniture company. While this avoids the risk of mixing incompatible furniture styles, it can produce a feeling of monotony, especially in larger installations. Other problems also are likely to arise because few library furniture suppliers can provide every item needed. Therefore, some pieces of furniture must be purchased from other vendors, which can lead to variations in style, color, and texture.

Lounge furniture offers a special opportunity to introduce additional color and texture into the interior design. Furniture manufacturers can provide helpful advice on the particular lines they carry. Library administrators who must assume responsibility for selecting furniture may want to talk to other librarians to inquire about their experiences with particular products.

Procurement of Furnishings and Equipment

Most often, furniture and equipment is procured through a bid process similar to that used for construction work. The same legal requirements are likely to apply. Bids will be solicited from vendors and a contract or contracts awarded. The procurement schedule requires careful planning as it is often difficult to coordinate the arrival and installation of the furnishings with the completion of the structure.

Preparing Specifications and Bid Documents

Writing specifications for furniture and equipment is an involved process. Ideally, the architect or interior designer should do it. Programs presented by the Buildings and Equipment Section of the American Library Association's Library Administration and Management Association have addressed this topic.³ Input from the person in charge of purchasing for the municipality also is a valuable source regarding the regulations associated with preparing specifications and bid documents for furniture and equipment.

An interior designer can be particularly helpful in the development of bid specifications. The designer's familiarity with the market will allow more accurate estimates of unit pricing. Depending on the volume of furniture or shelving ordered, the library will obtain a certain discount. The designer can help the library administrator distinguish between list price and the bid price and thus manage the project budget more effectively. An interior designer also can help you determine the most effective way to package and present the library's bids.

Often, shelving is bid separately from the rest of the furniture. On larger jobs, library technical furniture (usually defined as catalogs, index tables, atlas stands, and the like) may be bid separately from standard office equipment (desks and filing cabinets), which also may be bid separately from lounge furniture. Custom casework and other furnishings with special requirements may be bid separately or with other furniture, or it may be part of the general construction contract.

When purchasing furniture, be sure to find out the vendor's probable delivery date. Check with manufacturers to determine the amount of lead time to allow, plus delivery time. Add 15 to 20 percent, minimum, to this estimate to allow for slippage in schedules, material shortages, or strikes. Chances are still very good that a number of items will either be delivered at the very last minute or will be late.

Installing Furnishings

Floor and wall coverings usually are considered part of construction and will be installed under the direction of the general contractor. Sometimes carpeting is removed from the general contract. In that case, the architect or interior designer will supervise installation.

Other items of furnishings must be installed according to the building program. When the shipments arrive, carefully open each carton and examine the items for damage. If damage has occurred, file the appropriate claims with the furniture supplier and the carrier that delivered the parcel.

Shelving usually is installed first. Some manufacturers have their own teams to set up the shelving; if they don't, you can hire local workers. The architect should establish the proper placement of the stacks and make certain that the rows are exactly parallel, follow the location on the master plan, and are leveled to compensate for any deflections in the floor.

Loose or movable furniture are the next items to be put in place. After situating the desks, tables, and chairs according to the furnishings plan, carefully evaluate the layout to see if you need to make minor modifications. You can now test sight lines from staff desks, and adjust seating as necessary to improve supervision.

Other Concerns

Interior design planners also need to decide if they want to use movable partitions in staff work areas. And, they must consider directional signs to help their patrons find their way in the new building. They also must ensure that the library's interior design and the lighting design complement each another.

Partitions: Fixed versus Movable

Except in the smallest library buildings, some areas such as offices and workrooms need to be separated from other spaces. If possible, partitions used for this purpose should not support the weight of the building. Many partitions that aren't required to carry structural loads are constructed of lath and plaster on a metal or wood stud frame. Others use drywall in place of plaster. Some partitions can be designed as "dismountable," meaning they can be taken down and relocated.

Within large workrooms, it's possible to create a variety of work spaces through open-office planning that makes use of movable partitioning. Instead of going from floor to ceiling, movable partitioning usually rises only to eye level. Most of these systems are attractive in shape and design and offer a variety of textured surfaces colors and accessories. Because of its flexibility, open-office planning has the potential for making more efficient use of space than traditional designs.

One problem that sometimes occurs in open-office planning is the lack of acoustical control. The library administrator's office and the conference rooms, at least, should have floor-to-ceiling partitions to provide acoustical control. You might want to draw layouts using both traditional and open-office concepts to determine what works best for your library.

Signing

Well-phrased, logically placed, attractive, legible signing can make a facility easy and enjoyable to use. Observing the following basic guidelines can produce an effective, well-made sign:

- Use clear, simple language; avoid library jargon.
- Select a typeface and type size that makes the sign easy to read.
- Choose a design that attracts attention yet is complementary to the interior design.
- Determine how the sign will be illuminated.

Graphics specialists can be especially helpful in developing the signing; their professional advice often is well worth their fee.

Planning for signs and graphics can begin after establishing the general furniture and equipment layout. As library staff members review the layout, they should recall directional questions that users frequently ask as well as the answers that staffers give. Using these questions and responses as guidelines, staff members can determine the location and wording (and/or graphics) of the signs for the areas, functions, and collections that would benefit from signing. Certain signs relating to accessible environments are

governed by an applicable building code; in Wisconsin refer to ILHR 52.04(10), Wisconsin Administrative Code.

Sometimes, building features can be used as reference points in giving directions. For instance, one library used different color walls to identify its areas; reference services were near the blue wall, fiction by the yellow wall, and so on. However, take care when using such strategies as overuse can defeat the purpose of making it easy to get around in the library.

After settling on a sign's preliminary wording, ask a group of users to interpret the sign's meaning and to describe the directions they would follow. Modify the wording as necessary.

When the contents of the signs have been determined, review them with the architect or interior designer and select a sign manufacturer. Also, determine how the signs will be mounted. When finish work on the new library facility has begun, test the proposed location and readability of the signs by using mock-ups.

Lighting

Lighting has long been a problem in library design. Recommendations regarding lighting levels have varied over time; experts recommended more lighting in the 1950s and 1960s, and less during recent years amid concerns for energy consumption.

Lighting for library purposes can be categorized into several types: natural, artificial, direct, indirect, ambient, or task-directed. Natural light, or daylight, commonly is the standard against which other forms of lighting are compared. Skylights, clerestories, and windows let in natural light, which reduces artificial lighting costs. An array of artificial lighting sources, from task lighting to continuous luminous ceilings, are available. In addition to the traditional incandescent and fluorescent lighting are high-intensity discharge (HID) lights, which often are used in exterior settings and in spaces with high ceilings. Direct lighting comes directly from its source, indirect lighting is light reflected off another surface. Ambient, or surrounding, light can be complemented by task-directed, or localized, light.

While the color and intensity of lighting can enhance interior design, the top priority when designing a library's lighting system is to provide the user with the proper lighting. Since optimal lighting levels vary throughout the library, use the furniture and equipment layout to determine the lighting needs of each area. Also consider the lighting needs to emphasize design features. For example, a wall graphic may be illuminated by sunlight from a clerestory during the day and with concealed lighting fixtures at night. The placement of electrical outlets and lighting fixtures is dependent on this study.

When selecting types of lighting, avoid fixtures that produce excessive heat or glare as well as sharp contrasts between light and shadow, except when a theatrical effect is desired. Also, the building's orientation in relation to the tracking of the sun and seasonal changes may affect how lighting can be used in the library. All these aspects, and more, need to be considered when developing a library's lighting system.

Summary

Interior design and furnishings cover a great deal of important territory. It usually is best left in the hands of an expert—the architect or an interior designer. Layout of furniture and equipment, color selection and coordination, floor and wall covering selection, furniture selection, the preparation of specifications and bid documents all require expertise. Install furnishings in accordance with a carefully prepared plan. Signing is a very important element in the interior design; consider developing it as soon as interior work gets underway. Because the interior design largely determines the reception the library receives in the community, it's important to give it high priority.

Endnotes

1. The following sources address library interiors:

Furlrott, Rolf, ed. *Library Interior Layout and Design*. New York: G.K. Saur, 1982.
Pierce, William S. *Furnishing the Library Interior*. New York: M. Dekker, 1980.

Library Journal's annual "buyers' Guide" issue and other periodicals, such as *Interiors* and *Interior Design*, carry informative articles and product advertising.

2. Many sources describe the effect of different colors on people, including "Color and Signage" in *Designing and Space Planning for Libraries: A Behavioral Guide* by Aaron and Elaine Cohen (New York: Bowker, 1979, pp. 183-212).
3. Poole, Frazier G., and Alphonse F. Trezza, eds. *The Procurement of Library Furnishings, Specifications, Bid Documents and Evaluation*. Chicago: American Library Association, 1969.

During the architectural design stage, the project team will spend a great deal of time analyzing the architect's drawings. Plans analysis should occur at every stage of the library's design—schematic design, design development drawings, and final working drawings. Analysis also should include interior design plans.

In general, the project team reviews schematic designs for broad compliance with the space requirements and functional relationships of the building program. They then review the working drawings in more detail, focusing on the precise location of doors and cabinets, the number and placement of electrical outlets, the type and placement of lighting fixtures, and so on.

Numerous books in the library's collection provide helpful information on reading blueprints.¹ Also, books on mechanical drawing, drafting, and the building trades frequently contain this information. This chapter provides an introduction to the skill of reading drawings, a discussion of how to approach the plans analysis process for best results, and a summary of some common issues to consider while reviewing plans.²

Blueprint Reading

Skill in reading blueprints comes with study and practice. It requires an understanding of the tools used to produce the drawings as well as knowledge of the various types of drawings and their purposes.

What Is a Blueprint?

A blueprint is a large-scale, detailed, graphic plan for a building or renovation project. Blueprints contain a variety of symbols and conventions that convey the architect's intent.

Traditionally, drafters drew architectural and engineering plans on a special translucent paper using black ink or a drafting pencil. Today, more and more architectural firms use computer-assisted design (CAD) programs. Although complex and difficult to learn, once mastered CAD programs can speed production, improve coordination among the various plans in a set of blueprints, and help determine quantities of materials needed for a building, which can improve the accuracy of cost estimating. The more powerful CAD programs can automatically generate certain kinds of plans, including perspective drawings and elevations.

These drawings serve as masters from which copies are made. Even though the copies may be produced in blue, black, or brown ink on white background, they are referred to as blueprints.

Types of Drawings

There are various types of drawings, but the four most common ones are floor plans, elevations, sections, and detail drawings.

The floor plan tells where specific functions will occur and what spaces they will occupy. It provides a bird's-eye view of the building or space. Its perspective is typically that of looking down on the building from above. (An exception to this is a plan known as a reflected ceiling plan, which takes the perspective of looking up from the floor toward the ceiling and is used for locating lighting fixtures and other ceiling details.)

Elevations show how walls will appear; the locations of doors, windows, and other openings; and other such details. The perspective is that of looking straight at the building from the outside or at an interior wall. Full plans typically include exterior elevations for all sides of the building. These demonstrate the massing of the building, the vertical relationship of one area to another, the placement of doors and windows, and so on. Interior elevations show individual walls in the library, illustrating the placement of cabinets, fixtures, and the like. An interior elevation of a wall in a restroom, for example, would show the placement of the toilets, the placement and height of the sink, and the placement of any dispensers on that wall.

The section drawing illustrates an imaginary slice through the structure to reveal details of construction from foundations and slabs to columns, ceilings, and roof structures. It also provides a different perspective on relationships among various areas within the building. Technically, a floor plan is a type of section, except that instead of being "cut" vertically, the building is cut horizontally at a height of roughly five feet above the floor.

Detail drawings zoom in on small areas and present them in a larger scale to show how structural materials and components will be put together, especially where unusual conditions prevail.

Scales

All plans are presented in a specified scale. The scales vary from sheet to sheet depending on what is being displayed and the level of detail the architect needs to convey. Two common scales are a 1/8" scale (every inch on the drawing represents eight feet) and a 1/4" scale (every inch represents four feet). Most floor plans are executed at 1/8", especially during the early stages of drawing. Larger scales (1/4", 1/2", or 1") are usually used to illustrate details or blow-ups of particular elements once plans are better developed.

The one tool required for reading blueprints is an architect's scale or ruler which you'll want to have nearby whenever you're going to discuss plans. Architect's scales come in either a triangular or a flat shape. They are divided into proportional feet and inches so you can read dimensions directly from the plans once you know the scale at which the drawing was made. An architect's scale that provides for 1/8", 1/4", 3/8", 1/2", 3/4", and 1" is preferred.

Architectural Symbols

Architects use symbols to represent standard details. Symbols can be divided into those concerned with architecture, electrical service, plumbing, and mechanical work. A list of frequently used signs and symbols is shown in Table 10-1. As the plans advance, the architect provides one or more sheets of symbols. Or, consult a book on drafting or mechanical drawing that contains a key of frequently used symbols. An extensive list of architectural symbols can be found in *Architectural Graphic Standards* by Charles G. Ramsey and Harold F. Sleeper (New York: John Wiley & Sons, various editions). Memorizing the symbols saves time in referring to a key.

Common Architectural Symbols

Architecture/Drafting Symbols



Section flag



Room designation number



Door number



Detail: see detail drawing 6 on sheet 11

Electrical Symbols



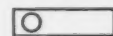
Duplex receptacle - wall



Duplex receptacle - floor



Ceiling light - incandescent



Ceiling light - fluorescent



Telephone outlet - wall



Telephone outlet - floor



Wall clock



Fire alarm



Television outlet



Exit light



Single-pole switch



Special purpose outlet -- data transmission, etc.

Heating, Ventilating, and Air Conditioning (HVAC) Symbols



Supply duct; outside air



Exhaust or return air duct



Floor register



Ceiling diffuser



Thermostat

Plumbing Symbols



Water closet (w.c.)



Urinal



Water heater



Drinking fountain



Lavatory



Floor drain

Reading the Blueprint

When properly read, a blueprint provides a clear-cut picture of a building project, limited in detail only by the completeness of the drawings and the viewer's ability to interpret them. The following guidelines will help you in reading a blueprint:

- Read all the legends, noting special symbols, scales, and other information that the architect thought was important enough to include.
- Orient the plan to the site, noting compass direction, which usually is indicated by an arrow on the site plan. Floor plans generally are oriented so the front of the building is drawn toward the bottom of the sheet.
- Take some time to become familiar with the plan as a whole before interpreting the symbols.
- Locate all exterior entrances and see how they relate to the site, pedestrian traffic, vehicle traffic, parking, and the major areas of the interior.
- Locate the primary areas in the interior of the building such as the circulation desk, bookstacks, adult reading area, and children's rooms.
- Note the paths of traffic as indicated by hallways, stairs, elevators, and aisles.
- Study the location of restrooms, drinking fountains, and the mechanical rooms which will house the heating and air-handling systems.
- Trace the traffic flow created by the user, library personnel, and library materials. Determine where congestion may occur and where unnecessary space may have been provided.
- Using an architect's scale, measure all areas carefully, calculate seating and stack capacity, and evaluate this information in terms of the building program requirements.

Plans Analysis

After you read the blueprint, you can begin detailed plans analysis. This involves constructing a mental picture of the library building in all its complexities. Address general questions first, develop a checklist of specific items to study, and then review the drawings from various vantage points.³ Finally, make a detailed comparison of the plans with the requirements established in the building program statement. Prepare a comprehensive list of questions and comments as part of the plans analysis process. This list becomes the basis of discussion with the architect, and every item should be fully resolved during these conferences.

General Questions for Plan Study

You often can determine the adequacy of the plan by asking a number of basic questions, such as the following:

- Does the building function? Are the service areas properly related; and does the movement of public, staff, and materials seem natural and convenient? A plan that doesn't read well in these details probably will produce a structure that doesn't function well.
- Will a person entering the library be able to identify the location of major functions and collections quickly and without assistance?
- Can users move from the entrance to the most popular sections of the library without walking through quiet reading areas?
- Are the distances between related departments reasonable? For instance, how far must you walk to reach the card catalog from the reference or circulation desk? Will you have to dodge columns or other major obstacles every time you make such a trip?

- Are proportion and scale well-conceived? Do heights, widths, and lengths seem appropriate in terms of materials or services to be housed?
- Are the various areas well-defined and clearly delineated? Have wall surfaces been used to advantage? Is the window placement relevant to the site and interior functions? Will windows produce uncomfortable glare or transfer heat and cold to the interior?
- Does the building seem to be assuming a special character? If so, is it in keeping with its use as a library, or does it look more like a supermarket or office building?
- Do the details and finish surfaces seem to be sensible and clean and made of materials that will be easy and economical to maintain?

Evaluating Drawings from Various Viewpoints

As part of plans analysis, envision yourself in a variety of situations. For instance, imagine that you're an adult patron on his or her first visit. Is it easy to identify the building as a library from the outside? Was the entrance convenient and attractive? What do you first see when you enter the building? Can you find your way around the building with a minimum of false movements or without asking questions?

Was it obvious where you should return books, register for services, or check out materials? How far must you go to reach the catalog or to speak to a librarian? Are there display facilities to catch your eye as you look around the library? How far must you walk to find material on any particular subject? Where are special services—such as audio-visuals, meeting rooms, and offices—located? By honestly answering such questions, you soon discover how well the library will function in the user's eye.

Now, mentally return to the outside of the building and repeat the same process, changing the questions as appropriate to represent the viewpoint and needs of users of all ages. Is the building attractive and efficient for all ages? What about the handicapped? Try a mental wheelchair tour, or view yourself as a person recovering from a heart attack or other ailment that limits physical activity.

After role-playing various users, look at the building from the vantage point of the library staff. Try it first as a circulation clerk. How far must you walk from one station to another? Where do people return overdue materials? What is done with all the books that are returned? Is it easy to give directions to those seeking a particular desk or part of the collection? How much of the library's public spaces can you visually supervise? Does the circulation desk provide enough space for the necessary equipment and files? Is it possible to handle switchboard operations (if placed there) while waiting on users? How close is the circulation workroom? Where are the modems located (if the library is participating in a regional automated circulation cluster)?

Ask yourself similar questions from the viewpoint of the cataloger. Where do shipments enter the building? How will they be routed through the technical services area? If the library is operating with a manual catalog, is the catalog close at hand or will it require long trips? In an automated environment, are terminals and electrical and data transmission capabilities located at appropriate points? Is the natural flow of materials through the workroom facilitated or inhibited by size, shape, design, or special obstacles in the room?

Thus, in turn, take the position of each staff member on up to the library administrator, and carefully review their normal activities as they would occur in the new surroundings. Where are the materials you must consult most frequently? How far is it to the catalog? Can you give directions easily? Will your conversations with patrons be disturbing to readers? Do obstructions block your view of the reading and stack areas? Pinpoint trouble spots and place these on the list of things to resolve in conferences with the architect.

Include the pages' and the custodians' viewpoints in this review. Over the years, their services account for a respectable portion of the budget, and a few steps saved may mean

important savings in time and effort. Determine how a book returned at the circulation desk will find its way back to its proper place in the shelves. Are there sufficient holding and sorting shelves, and are they convenient? Is there ample storage for book trucks at convenient locations? Where and how will the page receive daily information about schedules?

Does the custodian have ample storage closets for supplies and equipment located in reasonably convenient places in the building? Have wall and floor coverings been selected for easy maintenance? Does the custodian have sufficient space to do all required work, including a shop or workroom if minor repairs to furniture and equipment are a part of duties? Is there easy access to the restrooms so periodic inspections and necessary cleaning can occur throughout the day without transporting mop buckets and cleaning materials through public areas? Have provisions been made to minimize the amount of snow and mud tracked into the buildings?

Reading the Working Drawings and Specifications

The working drawings and specifications represent the last opportunity the project team will have to critically analyze the plans. In addition to applying all of the steps discussed above, the structural, mechanical, and electrical drawings must be mentally integrated with the architectural plans. The first step is to make a cursory review of all the sheets to become familiar with of the total package. Then, beginning with the architectural drawings, approach the plans as if you'd never seen them before. Check each detail to make sure that previously approved changes have been made.

Members of the project team must mentally enter each room and determine if everything is as they expect it should be. Review the door and finish schedules to make sure that each surface is receiving the treatment agreed upon, each door is the right type, and opens the correct way into the room, and kick plates have been specified if necessary.

After examining the architectural drawings, begin reviewing of the next section—usually the structural drawings. While it's not necessary to understand all the details shown, some of them, such as the detailing of columns and other finish work, will be important.

The mechanical plans concerned with heating, ventilation, and cooling are next in order. While the project team may have little basis for questioning the equipment to be used, there is every reason to review the placement of the registers and diffusers that control movement of air through the building. If too close to a staff desk or to public seating, the ducts may create annoying drafts. Also question the absence of diffusers in a room, since this may result in stagnant air.⁴

Unless included in the mechanical drawings, plumbing plans ordinarily follow. Here, the review should determine whether sinks have been properly located in work areas. It's especially important to make sure floor drains have been supplied in all restrooms and wherever water damage can occur from clogged fixtures. Protection of piping against freezing should be provided. Clean-out fittings, which provide access to the plumbing, should be specified in convenient locations for all fixtures.

The electrical engineering drawings usually are next. These include sheets for lighting, power, and communications. The type of power distribution system will be a central consideration, as will the location and type of electrical outlets. Likewise, examine the lighting design—the type of fixtures and their location—as they relate to the library's furnishings and equipment. Interpreting these drawings requires an understanding of the many symbols used to show various types of lighting fixtures, switches, circuitry, electrical outlets, and communications equipment. The project team should make a special effort to learn these symbols and understand the implications the lighting plan has for the operation of the library.

Check the location and type of every electrical outlet. Are they properly located in relation to the equipment that will be used at a particular staff or user station? Have the plans provided for future floor and wall outlets? How does the plan allow for future adaptations and additions to the electrical and data transmission needs of the library? Have outlets been placed in strategic locations along corridors and in entries for custodial use?

Using the list of architectural symbols, identify each of the electrical and communications devices provided. Do telephone outlets coincide with furniture layouts? Is there provision for a public telephone? Are clocks located where they can be seen easily by staff and public? Are door buzzers, alarms, and other signal devices properly located? Have the plans provided for a public address system? Do the p.a. system speakers cover all public and nonpublic areas, and are they properly zoned? Have special telephone and electrical lines been provided for computer terminals, teletype machines, facsimile equipment, and any other communications device requiring interference-free service? Where are smoke detectors and fire alarms located?

Working drawings also may include sheets detailing casework (built-in cabinets and counter work). If graphics and signs are shown in the working drawings, check them for size, proper spelling, locations, and wording. Signs also must conform with the special provisions of signing for the handicapped.⁵

After analyzing the plans, read all the specifications. The specifications govern the choice of materials, the performance of the various workers involved with the building, the standards or grades of fixtures, and the conditions of the contract between the owner and building contractor. While much of the detail will be of limited interest, key facts will emerge to supplement what you've learned from the drawings. Comparing the specifications and the drawings is necessary to determine whether all of the items called for in one are indicated in the other. Since the specifications often take precedence over the provisions in the drawings whenever a conflict occurs, resolve all apparent discrepancies before proceeding further.

Program Statement Comparison and Function Review

As part of the plan review process, the requirements set forth in the building program statement must be checked against the provisions of the building design. It's seldom that the two will coincide exactly; make sure any differences are acceptable. The following paragraphs will identify some key areas requiring layout analysis, offer guidelines and questions to help in your plan review, and provide information on specific criteria for estimating space needs.

Fulfilling Space Requirements

Perhaps the most obvious comparison is in terms of total square footage. Simple measurements can reveal if the number of square feet shown in the architect's drawings for each of the major functions agrees with the space requirements described in the program statement. Where you find a substantial difference, determine the reason for it. Were program calculations wrong? Has there been an agreed-upon change in requirements? Has the size of the module influenced design and dictated the use of more or less space? (See Chapter 8.) Of course, since space calculations used to prepare the building program statement are based on estimates, there is bound to be some variance in actual layout of furniture and equipment. In any case, such discrepancies deserve the attention of both the project team and the architect and must be resolved.

Collections and Stack Areas

Since the amount of materials the expanded building will house is crucial, pay special attention to the layout of bookstacks. Given the number of volumes to be housed as stated in the building program and knowing the arrangement to be followed, calculate the capacity of the bookstacks. The building program statement should provide the anticipated number of shelving units required for each portion of the collection. Are there as many shelving units on the plan as are called for in the program statement? If the requirements have not been met, adjustments must be made. One way is to add more book shelving, which means either adding more floor space to the plan or reassigning space from other areas to collection space.

The other way is to increase the number of volumes per square foot of shelving. This can be done by using taller shelving units or by using compact shelving for certain parts of the collection. However, choosing this option could reduce any expansion factor that may have been included in the program statement. For further discussion of bookstack capacities, consult the book, *Planning Academic and Research Library Buildings*.⁶

The comparison of shelving requirements for the collections and program needs must occur early in the planning process, as soon as the first schematic interior layouts are available. Discrepancies between the plans and the program statement will be much easier to resolve if detected early in the process.

There are a variety of questions to ask regarding the collections and stack areas. Are the collections located within a reasonable proximity to the seating? How far will staff members have to walk to the more frequently used portions of the collections? Are there more than ten three-foot sections of stacks grouped together in one long range? Can shelving be rearranged for more effective use of space? Will staff members be able to supervise the stack area from their desk positions?

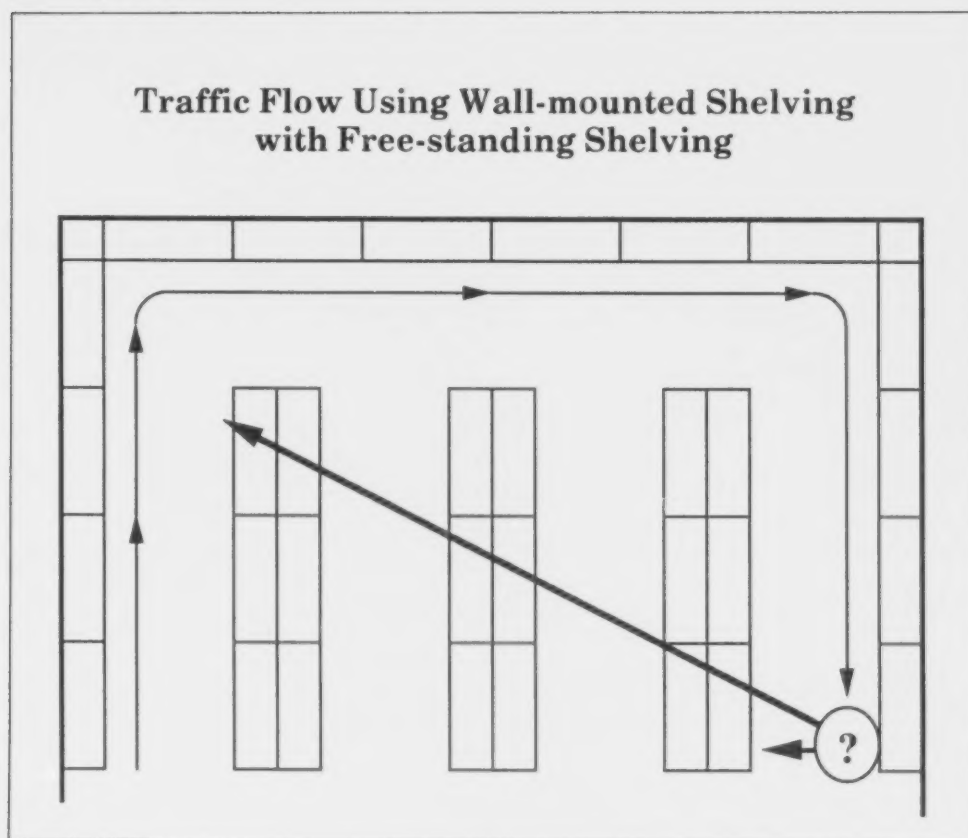
Are the aisles at least three feet wide?⁷ Have transverse aisles been used effectively, or do they use more space than is necessary? Are lighting fixtures located to illuminate the collections effectively? Are there at least three, and preferably four or more, feet of open area at the end of each range to provide turning space for book trucks? Are there any dead-end aisles? Is column spacing favorable for the placement of bookstacks?

Many library planners, particularly those from smaller libraries, want to use wall-mounted shelving around the perimeter of the room in combination with the free-standing bookstacks. While this approach increases the capacity, usually between 5 to 10 percent, combining the two types of shelving creates a complicated arrangement of the library's collections.

Figure 10-1 illustrates the confusion a patron can encounter when wall-mounted and free-standing shelving are used in combination. In this example, the ordering of the collection begins along the wall-mounted shelving. The patron can easily follow the order around the perimeter of the room, but becomes confused when reaching the end of the wall shelving. There is no clear environmental clue to where the collection sequence picks up again. Does the patron turn around to face the free-standing shelves and move through the collection backward, or move to the far corner of the free-standing shelves and move through the balance of the collection? Planners should find a satisfactory compromise between keeping more material in a given area and arranging the collections in a clear and logical manner.

If the collections are to be housed on more than one level, or if the technical services area is on a level other than that occupied by the bookstacks, what kind of vertical transportation has been supplied? Where are the elevators, conveyors, book lifts, or dumb waiters located? Is there ample clear space in front of them for a book truck and worker? What is their capacity in terms of loaded book trucks? Will books trucks have to be maneuvered through major reading areas or around major obstacles? The building program statement and your library's methods of operation will help you frame many more questions for study.

Figure 10-1



Seating

Use a similar approach to compare the seating provisions in the architect's plan with the requirements stated in the building program statement. Does the plan provide seating in the number and type called for in the program statement? As with the collection space, identify significant discrepancies between the program and the plan as early as possible.

After confirming the type and the number of seats, determine if the seating is attractively arranged. Will natural light sources produce glare at any time of the day or during particular seasons? How effective is the relationship between seating and collections? Can the seating area(s) be supervised easily by the staff from their regular stations? Is there sufficient spacing between tables to permit a person to pass between the tables when adjoining seating is occupied? Are aisles wider where they adjoin seating? Is it necessary for users to walk through seating areas to reach the stacks? Are the tables standard in size?⁸ You also may want to refer to the discussion on library seating by Sommer.⁹

In analyzing the seating, take note of the number of people seated at various sizes of tables and carrels and in lounge seating. Is this distribution compatible with your analysis of community use and preference? Is the distribution compatible with the service role or roles the library has adopted through its overall planning process?¹⁰ Are there sufficient accommodations for the physically handicapped? Since a sizable portion of the

library building is occupied by seating, make every effort to ensure that reader accommodations are appropriate in number, type, and arrangement to encourage maximum use.

Staff Work Stations

The staff work stations described in the building program statement should be identified in the plan. Where proposed stations have been merged during the design process or where new stations have been added, planners should confirm that such a change from the building program results in an improvement in the library's ability to serve its public. At this basic level of analysis, planners should concern themselves simply with the floor space devoted to each station. Does the plan provide sufficient room to house the furniture and equipment that will be required at this station?

Also note that stations around the circulation desk, in technical services, and in other areas require additional open floor space to accommodate the movement of book trucks and material; public service desks may require additional open floor space to accommodate the movement of patrons and staff.

Meeting Rooms

The meeting rooms shown in the architect's plan should meet the seating capacities required by the building program statement. Ask the architect for suggestions in arranging seating for various types of programs, such as a lecture or a film screening. How could seating be arranged in a seminar or classroom setting, where those attending are seated at tables? Do these seating environments meet the library's anticipated programming needs? Does the space shown on the plan for meeting rooms include facilities for coat closets, projection rooms, kitchens, storage for tables and chairs, or any other special support features that may be described in the building program statement?

Operational Review

The plans also need to be reviewed from the standpoint of how library operations will be affected, focusing on the layout of individual areas and their relationship with one another.

The Entrance

The entrance should have strong architectural appeal, inviting people to enter. Will it be obvious to passers-by? Is it reasonably accessible to pedestrians and to those coming by car? Will drop-off traffic be safe? Are there unnecessary obstacles to be avoided in the approach? Will it be difficult for the physically disabled to get to the library from the curb, sidewalk, or parking lot? Is the entry protected from winter winds? If separate entrance and exit doors are used, are they clearly distinguishable?

Once inside, is it easy for the user to determine where to return books, check out materials, and register for a library card? Will users see both staff and materials as they enter? Is there room for bulletin boards and display cases near the entry? Is there room for coat racks and umbrella stands? Is there seating nearby for people waiting to be picked up? Will noise generated in or near the entry disturb users elsewhere in the building?

The Circulation Desk

While the configuration of the circulation desk may change as planning proceeds, its general location and relationship to the entrance and basic functions should be established very early. While the circulation desk needs to be clearly visible to users as they

enter the library, it must not create a barrier, either physical or psychological, to the user. If possible, both adult and juvenile borrowers should be served at the same desk to reduce personnel costs and ensure efficiency in use of equipment. Since staff, users, and materials tend to converge at this point, traffic control is important.

Except in very small libraries, the design should encourage the public to enter through one door and leave through a separate, adjacent door. Consider automatic sliding glass doors, protected from the weather, which provide maximum convenience to users entering and leaving with arms filled with books, notebooks, briefcases, and other items.

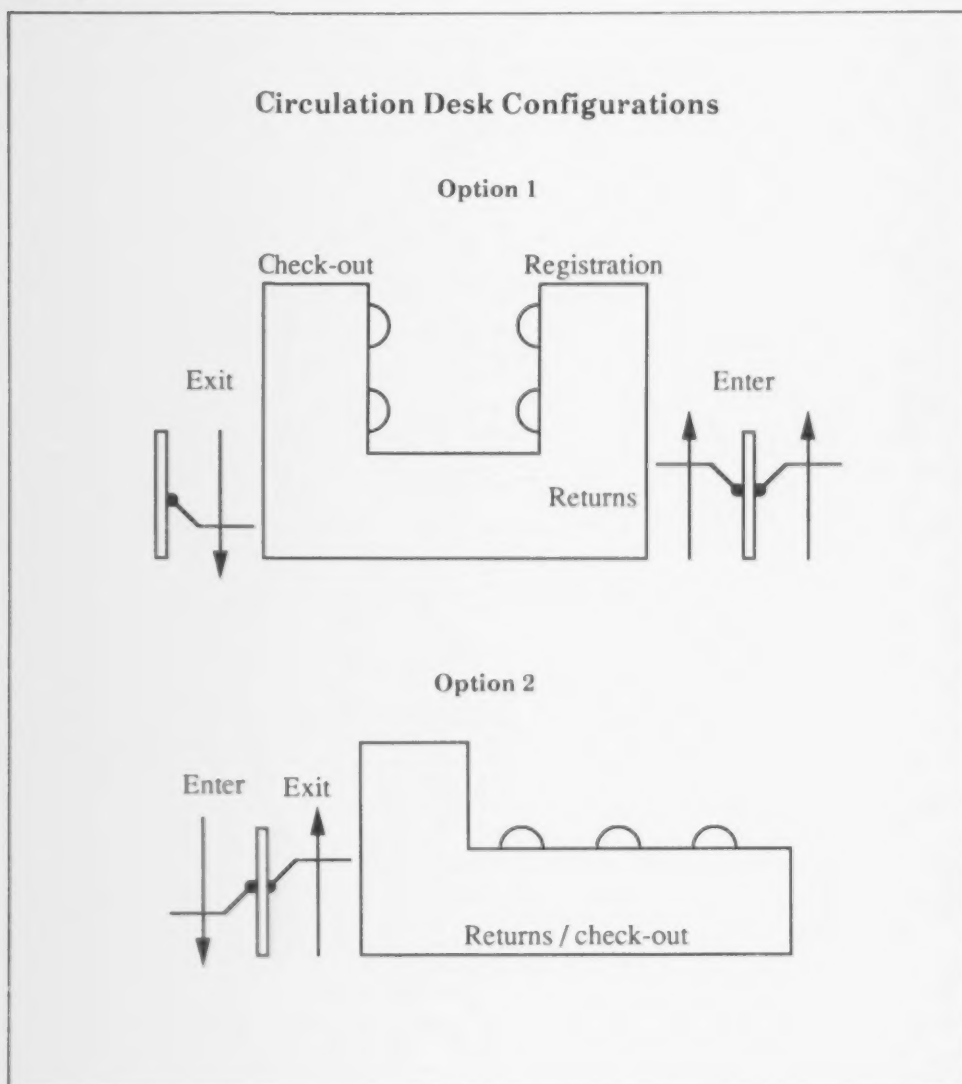
Traffic usually is best controlled with an island circulation counter, with the various functions positioned along the perimeter (see Figure 10-2). The island arrangement permits users to enter along one side of the desk, where they can return books and materials, and leave by passing along the opposite side, where check-outs are handled. The center of the desk is used for registration and special services, such as the pick-up of reserve books, and so on.

As you review the layout of the circulation desk, consider the following questions:

- Can the user readily locate and identify the circulation counter?
- Are the functions at the circulation counter logically arranged as far as the user is concerned?
- Is there adequate room at the circulation desk for the required number of staff, necessary equipment, files, and the movement of materials?
- Does the electrical plan show sufficient, properly located outlets?
- Is there room behind the circulation counter for book trucks to handle returned materials?
- Has sufficient space been provided for users in front of the counter for registration, payment of fines, and check-out?
- Does the shape of the desk encourage users to form lines when more than one person is waiting for service?
- Can a telephone switching unit be operated easily by a staff member who is simultaneously performing other duties, such as checking out books?
- Have electrical and data transmission services been provided for current and future automated applications?
- Can circulation desk activities be supervised easily?
- Can users discuss problems over fines and lost books out of earshot of the general public?
- Has enough depressible book bin space been supplied to contain the anticipated accumulation of returned books?
- Is the book return area designed to ensure users that materials they return won't be available to another borrower until they have been cleared from his or her record?
- Is there enough room for handling reserve books and interlibrary loan materials?

In larger libraries, there is a great temptation to divide and subdivide the desk according to its functions. In larger libraries, it can be beneficial to separate other functions not related directly to circulation and establish a new service point. As libraries grow, there are many miscellaneous activities—such as monitoring and making change for the photocopier, answering the telephone, and routing the mail—that usually are handled by the circulation staff. Establishing a new service point—an information desk, perhaps—could allow the circulation staff to better concentrate on their main duties. The decision to create any new service point will depend on the library's ability to staff the additional desk and the burden that the new service point will ease.

■ Figure 10-2



The Catalog, Indexes, and Bibliographic Tools

It's often useful to consolidate the catalogs, bibliographic tools, and periodical indexes into a central catalog and index center. Locate the center reasonably close to the circulation, information, or reference desk—wherever patrons will take their questions.

In figuring card catalog requirements, a series of simple calculations will provide reasonable estimates. Begin by multiplying by five (the average number of cards per title) the number of nonfiction titles the library anticipates owning in the next ten to 20 years. Divide this number by 1,000 (the average number of cards per tray), and the resulting quotient represents the number of card catalog drawers necessary. Repeat the calculations for fiction, using three cards per title.

The amount of floor space a card catalog takes up depends on how tall the catalog units are stacked. Sectional catalog units can be made up of as few as two rows of drawers—with five or six drawers across—for a total of ten or 12 drawers. A full-height cabinet, with up to 72 drawers, is more space efficient. However, a taller cabinet requires more reaching and stooping to use the top and bottom drawers. On the other hand, a more convenient cabinet may need more floor space than the library can afford to give it.

Note, also, how much space has been provided for consulting the card catalogs. Except for in very small libraries, consulting tables between or adjacent to the catalog units are recommended. The tables should be counter height and located far enough from the catalog units to permit use of both without interference. A three-foot space between catalog and consulting table is considered the minimum.

As traditional card catalogs are being superseded in many libraries by other types of catalogs, ranging from microform and book catalogs to computer terminals, it's important that any space designed for the card catalog can be adapted to other forms of collection indices. If an automated catalog is already in place, or if one is to be implemented in the expanded building, the vendor can provide detailed site preparation requirements for public-access terminals. Often, such a system requires separate dedicated electrical and data transmission circuits for each terminal. Consider the location and orientation of terminals to reduce glare on the screen. An automated catalog allows the library to decentralize access to the catalog, so additional terminals may be distributed throughout the library to improve convenience.

The recommended number of terminals depends on the level of patron traffic. One common measure is one on-line, public-access catalog for every 100 patrons entering the library per day.¹¹

The space required for an on-line, public-access catalog terminal will vary depending on whether the station is meant for stand-up use (for short, specific queries) or sit-down use (for a more thorough search of the library's catalog). The former requires 25 to 30 square feet of floor space; the latter requires 35 to 40 square feet of floor space. Libraries typically use a combination of both types. Sometimes, the sit-down catalog stations encourage a few individuals to monopolize the terminal.

The space required for a public-access catalog terminal also varies depending on whether the station has a printer. A printer will add between five and ten square feet of additional floor space to the requirements for each terminal. Most libraries equip only a few terminals with printers. Keep in mind the acoustical concerns associated with printers.

The catalog/index center area is subject to congestion, so review the layout in light of traffic, noise, and ease of access to adjacent collections.

The Adult Area

The adult collections should follow a logical sequence with as few interruptions in continuity as possible. If there is a separate reference collection, identify it clearly so users can find it. Display current periodicals and newspapers in the most attractive manner possible. Most readers of periodicals appreciate lounge seating. If possible, seating and stack areas should be dispersed. Ideally, all stack areas will have seating conveniently nearby. Avoid large blocks of reading tables that increase the likelihood of conversations between readers.

Special materials such as documents, pamphlets, mounted pictures, and microform need to be reasonably close to a public service desk, since users often ask for staff assistance. Similarly, the reference tools, especially encyclopedias, dictionaries, and other frequently used resources, must be near the appropriate service desk (probably the circulation desk in a small library or a separate reference desk in a larger library). Periodical backfiles are best located near the index center for both staff and user convenience.

An analysis of traffic flowing through the adult area is helpful in determining the effectiveness of the layout. Using felt pens and a tissue paper overlay, trace with a separate color the traffic pattern for the patron, staff, and materials using different scenarios. Patron A, for instance, may enter the room and go directly to the periodical reading area. Patron B, after asking a question of the librarian, may go to the section containing the books on architecture. Patron C enters and goes to various parts of the bookstack to browse; after accumulating an armful of books he takes them to a nearby table for examination. At this point, a telephone call sends the staff member back to the desk and then to the card catalog, followed by a trip to the psychology section, then back to the circulation desk. A page enters with a book truck to shelve returned materials in the 800 and 900 classifications. By continuing such scenarios, you can analyze whether all the critical elements are laid out in the most convenient fashion. This exercise should involve all the members of the library staff.

Reference Area

In the small library, the reference area probably will consist of a few sections of shelving arranged close to the staff desk. One or more tables will be needed nearby for easy consultation. The reference area and catalog center have a natural affinity. In view of the increasing use of computer-based reference services, provide for one or more computer terminals in this area. Usually, these are placed in carrel-like spaces that can accommodate a library staff member and the user.

Where more space for reference materials is called for, this subsection of the overall collection should still meet the basic requirements for convenience and efficiency that apply to other parts of the collection. In analyzing traffic, be sure users and staff members going to and from other areas can by-pass the reference area. Combining reference tools, periodical backfiles, documents, and other such materials, and relating these to the catalog center, usually provides an efficient arrangement for economical use.

Reference/Information Librarians' Service Desks

It's important to provide proper accommodations for staff covering the reference and information desks. This may consist of either a desk or a counter. A desk, such as a standard office desk, should be a large enough for left and right storage drawers. Provide one or two chairs to accommodate users asking for assistance.

The furnishings layout should place shelving for the most frequently used reference material within easy reach of the librarian.

Consider using a credenza for storage and a section or two of counter-height shelving (42" tall) for materials. One effective plan is to create a U-shaped arrangement behind the desk, so the librarian can turn without rising or taking any steps.

The amount of shelving should be minimal, since only a few titles are used frequently enough to warrant placement here. These may include a dictionary, atlas, a one-volume encyclopedia, almanac, and similar titles. Except in smaller libraries, consider duplicating these titles for the ready reference collection.

The location of the reference or information desk will be a key factor in its success. Is it readily visible to the adult user entering the library? Can directions be given easily to other parts of the library and collections? Can the reading areas be supervised easily from this location? Are the resources most frequently used close enough for efficient use? Can business conversations be carried on with users without disturbing nearby readers? Are electrical outlets and a telephone connection available to the desk? Do the plans provide for at least one computer terminal to support on-line database searching? Will the light be adequate for prolonged reading of fine type in indexes and other tools? Does the desk face a window that may be a source of glare? Does the mechanical layout ensure proper air diffusion without creating a draft problem over the desk?

Audiovisual Areas

The nature, quantity, and variety of nonprint materials will determine the arrangement of audiovisual (AV) collections and services. If the library is integrating audiovisual materials with printed materials on the regular shelves, it should position carrels with electrical service throughout the collections so patrons can use the audiovisual materials in the library. Since a staff member may have to assist the user now and then, it is also important to locate these carrels reasonably close to a service desk. If nonprint material is going to be held in a separate collection, then any stations for in-house use should be centralized as well.

Nonprint materials are in a continual state of change. For instance, compact discs (CDs), introduced in the late 1980s, joined the ranks of audio cassettes and phonodiscs in the recording industry. This format soon became more popular than phonodiscs, to the point that some recording manufacturers discontinued producing the phonodiscs at all. In addition, yet another format, the digital audio tape (DAT) became available shortly after the compact disc entered the market.

Just as CDs have changed the audio industry, the arrival of videocassette players and tapes transformed the film industry. The cost, convenience, and quality of this technology made it easy for libraries to supplement or replace their film collections with videotapes. In any case, the film collection should be stored in a work area adjacent to the service or circulation desk, so they can be monitored and accessed easily.

These examples illustrate the need to design audiovisual areas so that they can be adapted to respond to future technological changes.

More and more libraries are providing public-access microcomputers for in-house use. As with most library equipment, a library's public-access microcomputer should be located near a service point so staff can assist patrons as needed. Software theft is a concern, and library staff should monitor software use very carefully, keeping these collections under closed access.

For framed art, some libraries arrange prints on the wall around the perimeter of the room or on top of stacks, which can be inconvenient to staff and users alike. Another option is to use large swinging panels with vertical dividers, designed by the architect or purchased from a commercial manufacturer. Each vertical compartment holds one or two paintings. While more paintings can probably be stored per square foot this way, public viewing is less convenient. Regardless of the method used, the layout must provide protection for the framed art collection as well as allow the user to observe and enjoy the artwork.

If the library lends projection and other AV equipment, it should be stored where it is convenient for the user to pick the equipment up and carry it out of the building. A storage closet next to the desk of the librarian responsible for this equipment may be the best location. Be sure the closet is large enough to store several projectors of various types without having to stack them on top of one another.

In reviewing this layout, consider questions concerning the relationships of materials, users, and staff. For film collections, is there a small preview room nearby with screen and projector? Can the projector be supervised by a staff member in conjunction with his or her regular work assignment? Are record turntables, tape decks, and CD players available within an easily supervised area? (Given the popularity of audio cassettes and CDs, the library may want to consider providing more convenient access to its collection by lending personal portable stereos for use in or outside the building.) Will walls and ceilings need to be insulated for acoustical control? Do the plans allow for adequate workroom space for processing and maintaining audiovisual materials? Must users of audiovisual services pass through other areas where readers may be disturbed?

For libraries with video programs that include some production capabilities, a small studio will be needed, along with storage space for cameras, monitors, and other equipment. The studio can range from simply using a conference room to providing a separate

video facility complete with special lighting, backdrops, set storage, and in the most sophisticated instances, a control booth. Lighting and acoustics are major factors in the design of a useful production studio. The sophistication of the library's video facilities may be dependent partially on the library's role in the community antenna television (CATV) program. If the library bears the primary responsibility for CATV, then its needs will be somewhat greater than otherwise. Because conditions and requirements vary widely when a library enters the video production field, design and specific features must be worked out individually.

The entire audiovisual area is complex and requires care in its layout. It is an area that is certain to grow. Audiovisual services generate a great deal of traffic and adequate staffing is required. Using this discussion as a guide, the library administrator must project the eventual space requirements and layout that will effectively serve the audiovisual user's needs now and for the next ten to 20 years.

The Children's Area

The children's area is also subject to the same kind of analysis as the adult area. Many of the questions regarding the adult area also apply to the children's area, only framed in the context of a younger library user. Take care to determine how well the staff can supervise the area. If there is a separate children's room, will the desk be obvious, but not foreboding, when the child enters the room? Is the internal arrangement of materials and seating logical and convenient for all? If separate restrooms are provided for the children, can they be supervised easily?

How does the children's area relate to the entrance of the library and to the adult area? Does the children's room have a personality of its own? Are the spaces and furnishings designed with a child's scale in mind? Is there an adequate number of electrical outlets for the various pieces of audiovisual equipment needed? If there is a special room or area set aside for story telling, is it located where children and classes can use it without interfering with other library activities? Can children move in and out of the library safely? Is there a safe place outside for bicycles?

Special Collections

Some libraries have collections that merit separation from other materials and services. This is true most frequently of local history and genealogy collections that may contain valuable and unique items. To protect these materials as well as to make them available to users under properly supervised conditions, place the collections in a separate room or in a well delineated area.

Consider special collections rooms or areas from both the user's and the staff member's viewpoints. Does the location of the special collection provide the desired protection and supervised access? Is the location so obscure that it will jeopardize use of the area? Is there enough room provided for collection growth? Are locked cases and locked vertical files available? Is there sufficient seating? Is there provision for staffing the area? Is the special collections area connected to the rest of the library by telephone? Have the special items of furniture, equipment, and casework requested in the program been supplied? If a vault is called for, is it reasonably convenient? Do the plans provide for displaying items of interest to call attention to the nature of the collection?

Meeting Rooms

If meeting rooms of any kind are incorporated into the plan, take special note of their location, size, and furnishings. Will the rooms comfortably seat the number of people indicated in the building program statement? Can the rooms be divided into smaller meeting spaces, if so indicated in the program statement? Are the rooms easily accessible

to the public without creating unnecessary traffic through the library? Can the corridors leading to the meeting rooms be supervised easily? Can the meeting rooms be used when the library is not open? Do the meeting rooms have convenient access to restrooms at all times? Have kitchen facilities, public telephones, and drinking fountains been provided? Are there ceiling-mounted projection screens, and where necessary, projection rooms? Has the library considered the need for video projection in addition to or in lieu of film projection? Is a sound-reinforcement system needed? Is the lighting appropriate? Is there special lighting above the platform, and are there sufficient outlets for lights and equipment on and in front of the platform?

Staff Offices and Work Areas

Make a detailed and thorough review of the layout of staff offices and workrooms. Staff members should analyze their own areas and be encouraged to question the plans when doubts arise. Sometimes a staff member is so accustomed to one way of doing things that it becomes almost impossible to visualize any change. You may want to use work flow studies to encourage new thinking.

Offices and work areas should form a logical sequence and be arranged in a convenient, efficient manner. Do offices or workrooms that carry on complementary work relate well to one another? Will staff in technical services be disturbed by public services staff going to and from their desks or making telephone calls? Is the circulation workroom reasonably close to the circulation counter? Can a visitor find the administrative office without intruding on other staff areas?

Do staff facilities such as restrooms, kitchen, and lounge require a minimum of travel time from work stations? If there is a separate staff entrance, is it convenient to staff parking and to the workroom areas? Where are the staff lockers located, and are they secure? Have adequate facilities been set aside for the preparation of displays? Is there space for storing infrequently used materials, large shipments of library and custodial supplies, and gift books awaiting evaluation?

Carefully analyze the layout of furniture and equipment within each office and workroom in terms of actual working conditions. Is the arrangement conducive to efficient work flow? Is there room for the growth in staffing and operations expected for the next ten to 20 years? Do those who need privacy have sufficient protection from their immediate surroundings? Are there any enclosures provided that reduce flexibility of the space and inhibit normal work flow? Are counters and other work areas at the proper height?

Have electrical outlets been placed for the utmost safety and convenience? Will the location of any outlet require an electrical cord to stretch across an aisle or a counter top? Are light fixtures properly placed to give maximum light without glare? What provisions have been made for office automation? Will windows produce heat or glare at any time of the day or year? Are there reflective surfaces outside the windows which, if not screened, will produce visual discomfort within the building? Are air diffusers and returns properly placed for control of air circulation and drafts?

Storage/Mechanical Areas

Nonassignable space used for storage, mechanical, and other purposes should be examined during the operational review. The project team needs to identify the specific purpose of each nonassignable space and consider the effectiveness of each use of space and its relationship with other surrounding uses. In many cases, code or engineering requirements determine the size of these various nonassignable areas. The size of the restrooms, for instance, will be affected by the number and type of fixtures required by code. The size of a furnace room will be determined by the engineering requirements for the heating, ventilating, and air-conditioning (HVAC) system to be used in the design and the specific equipment needed to serve the building.

Does the vestibule offer suitable separation and climate control between the exterior and interior of the building? Is it inviting? Does it initiate a patron's orientation to the library facility? Are there seats or benches? If it also serves as a lobby for the meeting room, is the vestibule large enough to accommodate people waiting to attend a program?

Is the library large enough to warrant separate restrooms for public and staff, or adults and children? Do the restrooms require the security of a lock or a buzzer release to protect against vandalism?

Where are mechanical and janitorial spaces located? Will the location of the mechanical rooms interfere with day-to-day operations of the library? Is there suitable acoustical separation for air-handling units or air-conditioning condensers, or will the noise generated by the operation of this equipment disrupt library use? Where does the electrical service enter the building? Where does the telephone service enter the building? Is there ready access to these areas in case repair is needed? Is there at least one janitor's closet on each floor of the building?

Libraries, like homes, never seem to provide enough storage space. A larger building may require a greater variety of supplies and materials to keep the building in good repair. An expanded building may employ a greater variety of lighting fixtures in different areas, which will require that the library keep a larger stock of lamps on hand. Or the design may call for two different types of ceiling treatments in different parts of the building, requiring storage of replacement tiles in both styles. In an expanded building, it may be beneficial to purchase cleaning supplies, office supplies, and other material in larger quantities to take advantage of lower unit prices.

Since computer and AV equipment manufacturers and vendors typically insist that you return equipment in its original container when it needs service, you also need to find storage space for a variety of empty boxes. The amount of storage space required to retain shipping containers can be a surprise for the library that is not presently using automated technologies. In any case, examine what kind of dead storage space is available in the plan, note where it is located, and which staff members are likely to need access to it.

Other Concerns for Analysis

In addition to the internal areas already discussed, you also need to compare the architect's plans with other provisions of the building program statement, as well as review them from a practical viewpoint.

The Site Plan

When the site plan is first introduced in the schematic phase, carefully note the orientation of the building to parking and pedestrian access. Is the orientation going to provide the kind of visibility the library should have to passing motorists and pedestrians? Will access to the parking lot pose safety problems for the motorist or pedestrian? Do the entrance and exit drives to the parking lot conform with the normal flow of traffic? Will delivery vehicles experience any difficulty finding and making their way to the shipping and receiving area? Can they return to the street safely?

Does the building's orientation make the most of the site? Is the building set back from the sidewalk more than is necessary? Do neighboring structures pose problems such as reflecting glare from their windows, transmitting excessive noise, introducing conflicting vehicle traffic patterns, or displaying offensive nighttime lighting or signing? How difficult will it be to keep walkways free of snow and ice? Will library users be unnecessarily exposed to the weather while walking from the parking area to the library entrance?

How will trash be collected and where will it be held for pickup? Has shelter been provided for delivery vehicles? If a loading dock was requested, is it of suitable dimensions and properly located in terms of vehicle access and internal functions? Will exterior lighting be adequate for the safety of those using the parking lot as well as for pedestrians approaching the building? Have adequate roof gutters and storm drains been supplied to take care of melted snow and run-off rainwater? Is water from gutters and other sources channeled away from walkways? Are walks and entrance approaches wide enough to meet the regulations for the physically disabled? Does the landscaping plan enhance the building? How much maintenance and care will shrubs, trees, and other plantings provided for in the landscape plan require? Has the safety of pedestrians and vehicle traffic been considered in the landscape plan?

Structural and Mechanical Concerns

Structural and mechanical details also require attention. If a flat roof has been designed, what assurance is there that heavy rains and snow melt will drain from it properly? Are skylights and other projections on the roof sufficiently elevated to be above the areas where water will collect before running off the roof? Even a so-called flat roof should have some pitch to encourage swift drainage. If a pitched roof is used, will accumulated snow endanger passers-by? Are drains adequate? Are roof drains, gutters, scuppers, and so on, likely to be clogged by leaves or other debris? Have adequate protective devices been designed into the mechanical system to avoid damage in the case of malfunction during severe cold weather? Has the water system been insulated adequately against freezing?

In areas where the water table is close to the surface of the land, pay special attention to waterproofing any subterranean part of the structure. This includes basements, mechanical equipment rooms, and elevator shafts. If the danger of flooding exists, insist that all electrical switch panels and telephone equipment rooms be located above grade and that walls and floor slabs be waterproofed. While the librarian and the project team members may not feel qualified as structural and mechanical engineers, they must understand the design and construction process sufficiently to ask questions such as these and to evaluate responses.

Even a limited knowledge of engineering dynamics concerned with underground water can be helpful.¹² Groundwater, which follows the laws of hydraulics, does not simply seep up against walls and foundations and then ooze through walls and floors. Instead, structural elements act as dams and create a hydrostatic head of water, which exerts pressure at the rate of 62 pounds per square foot times the height of the water level. In other words, if the water is two feet deep around the basement walls, the pressure exerted is 124 pounds per square foot. As a result, water seeps through permeable materials under pressure. A degree of buoyancy also results from this pressure and exerts itself on walls, foundations, and floor slabs. Because water levels rise and fall throughout the year, soil tests should be made when subsurface water tends to be highest at the particular site.

Where subsurface water exists, it may be necessary to install underground drains, pumps, or other means of reducing the hydrostatic head of water. Walls and slabs should be waterproofed using techniques such as the installation of membranes between the soil and the structure, use of various waterproofing materials on the faces of walls, and/or increasing the impermeability of concrete by adding special compounds to the mixture when it is poured.

The freezing of soil containing groundwater creates even greater problems. And, the pressure exerted when moisture in concrete freezes creates cracks in the foundation that get wider over time, which inevitably leads to structural weakness.

Being familiar with these problems and their remedies will enable the project team members to make a qualified evaluation of the provisions made for the library building.¹³

Automation Requirements

Today, automation requirements can be categorized either as library automation applications—such as automated circulation systems and on-line catalogs—or office automation applications, which include production programs for word processing and spread sheets. While a detailed treatment of automation requirements is beyond the scope of this publication, it is useful to highlight some fundamental concepts and concerns. Several books dedicated to this topic provide additional information.¹⁴

Automation puts varying degrees of demands on a library's environmental controls as well as its electrical and data transmission services. Systems that include a mainframe computer usually require that the computer be housed in a separate room with its own environmental controls and back-ups. The environmental requirements of minicomputers are less restrictive than those for mainframes, and most personal computers (PCs) and microcomputers operate well in an ordinary library settings. Consult the manufacturer's specifications to ascertain a particular system's temperature and humidity needs.

Different automation systems also have different electrical requirements. Terminals connected to a mainframe computer usually operate on their own separate, or dedicated, communication line. Stand-alone microcomputers used to support circulation activities and personal computers used for office automation applications commonly operate on regular electrical current. However, these units should be equipped with surge protectors. Again, refer to the manufacturer's specifications to learn any given system's electrical needs.

There are several ways of transmitting data among automation systems. Each of these data transmission methods affects the telecommunications needs that the library's design must support.

An in-house automated system may have terminals at various staff work stations, as well as public-access catalog terminals throughout the library that are connected directly, through a hard wire, to a centrally located minicomputer.

Communications outside the library building use a standard telephone line and modem to connect a personal computer or terminal with a remote database. For example, participation in a regional circulation network requires each library in the network to have a dedicated telephone line(s) that enables its terminals, via a modem, to transmit data to and receive data from the remote host computer.

Office automation applications can be enhanced by structuring the system around a shared database of applications and files. For instance, local area networks (LANs) involve connecting, usually via a hard-wire hookup, desktop personal computers to a single, more powerful personal computer. This larger computer acts as a file server, storing and making available software programs and data files.

To support library automation systems, a building's electrical system must be flexible. This is an essential consideration. Since terminals and other computer equipment must be located near electrical and data transmission outlets devoted to them, the placement and quantity of these outlets must be considered carefully. Keep in mind that future expansion or changes may affect the location, number, and type of computer outlets the library will require. Thus, the electrical as well as the data transmission services must adapt to changing library requirements and computer technologies.

Often, there is a trade-off between flexibility and cost. Traditional electrical installations—which consist of wire pulled through conduit located in floors, walls, and ceilings—is costly to expand or adapt. While some flexibility can be incorporated into this type of installation by running conduit and electrical service to locations of anticipated need, this strategy wastes money if the prospective locations are never used.

There are alternate engineering and construction technologies that provide increased flexibility. These include installing a grid of in-floor chases—space for pipes or ducts—through which cabling can be drawn to specific locations, using flat wire or undercarpet cable, or building raised computer floors.

While the alternative strategies provide more flexibility, they also increase construction costs. Whatever method the planners choose for providing electrical and data transmission, they must weigh its installation cost against the likelihood of future modifications.

Lighting Requirements

The increasing use of microfilm readers, microcomputers, and other types of display screens has affected the type of lighting libraries need. Will the types of lighting provided in the plans meet the varying needs of patrons and staff members as they undertake different activities? Is there an adequate amount of task lighting, which allows users to directly control surrounding lighting levels? A greater reliance on task lighting will require a more sophisticated power distribution system to deliver adequate electrical service to all points where task lights are to be located.¹⁶

In practical terms, planners must review the lighting design with an eye toward maintenance. How many different types of lamps does the design call for? The less the variation, the easier the maintenance. Are the lamps standard types, or must they be specially ordered? What is the expected life of each lamp? Do fixtures require a ballast, and if so, how and how often must it be changed? Is special equipment required to change the fixtures (scaffolding to replace lamps in high-ceiling areas, for example)?

Summary

In comparing the library building program statement with the architect's plans as they evolve, the library administrator must take great care in determining the exact quantities and capacities provided for in the drawings. Equally important is the ability of the various areas to function properly with respect to each other. In reviewing staff offices and work areas, both the relationships of the various areas and the internal arrangements are of great importance. The site plan offers still other matters for review. Pay particular attention to structural details, such as waterproofing when the water table is high enough to be a threat. Though this review process is long and complex, it's the only way the library administrator and the project team can evaluate fully the accuracy of the plans and the ability of the proposed building to function effectively.

Endnotes

1. Some titles on this subject include the following:

Hornung, William J. *Blueprint Reading: Interpretation of Architectural Working Drawing*. Englewood Cliffs, NJ: Prentice-Hall, 1961.

Muller, Edward J. *Reading Architectural Working Drawings*. 2nd ed. Englewood Cliffs, NJ: Prentice-Hall, 1981.

Sundberg, Elmer W. *Building Trades Blueprint Reading*. 3rd ed. Chicago: American Technical Publishers, 1981.

2. A recent publication that can help with this review by identifying issues to consider is *Checklist of Library Building Design Considerations*, edited by William W. Sannwald and Robert S. Smith, Chicago: American Library Association (ALA)/Library Administration Management Association (LAMA), 1988.
3. See *Checklist of Library Building Design Considerations*.
4. The first edition also referred to provisions in the mechanical plans for automatic snow removal from sidewalks, entrances, and drives. Shortly after the publication of

that edition, heated sidewalks were prohibited in Wisconsin (s. 101.124, Wisconsin Statutes, and ILHR 63.11[5], Wisconsin Administrative Code). Other allowances may prevail in other parts of the country.

5. ILHR 52.04 (10), Wisconsin Administrative Code, states that "the international symbol for barrier-free environments shall identify all accessible entrances, toilet facilities, drinking fountains, telephones and parking spaces."
6. Metcalf, Keys D. *Planning Academic and Research Library Buildings*. 2nd ed. by Philip D. Leighton and David C. Weber. Chicago: ALA, 1986, pp. 151-158; 558-562.
7. According to Wisconsin code, the minimum aisle width for book stacks is 36 inches. Wider aisles, though not required, will contribute to a greater sense of accommodation for the public. However, wider aisles reduce the library's storage capacities per square foot. Other states may have different requirements for minimum aisle widths.
8. See the discussion on pages 343, 376, and 472-473 in *Planning Academic and Research Library Buildings*, keeping in mind that these comments are for a university library. Some recommendations for table size and spacing in seating environments are provided in Myller's *Design of the Small Public Library* on pages 61 and 64.
9. Sommer, Robert. *Personal Space: The Behavioral Basis of Design*. Englewood Cliffs, NJ: Prentice-Hall, 1969.
10. See *Planning and Role Setting for Public Libraries*, by Charles R. McClure et al., (Chicago: ALA, 1987).
11. Boss, Richard. *Information Technologies and Space Planning for Libraries and Information Centers*. Boston: G.K. Hall, 1987, p. 33.
12. An introduction to this topic is provided on pages 351-359 in *Time-Saver Standards for Architectural Design Data*, edited by John Hancock Callender (New York: McGraw-Hill, 1974).
13. ILHR 53.20, Wisconsin Administrative Code, addresses foundations, bearing capacity, and frost penetration.
14. The following three books address automation requirements for libraries:

Boss, Richard. *Information Technologies and Space Planning for Libraries and Information Centers*. Boston: G.K. Hall, 1987.

Cohen, Aaron, and Elaine Cohen. *Automation, Space Planning and Productivity: A Guide for Libraries*. New York: Bowker, 1981.

_____. *Planning the Electronic Office*. New York: McGraw-Hill, 1983.

15. The following resources address lighting requirements for libraries:

Metcalf, Keyes D. *Library Lighting*. Washington, DC: Association of Research Libraries, 1971.

Waters, Bradley A., and Willis C. Winters. "On the Verge of a Revolution: Current Trends in Library Lighting." In *Library Trends* 36.2 (Fall 1987), pp. 327-349.

Bidding and Contract Negotiation

11

When the working drawings have been developed and approved, the project is ready to go to bid. For a public library, this is a public process, involving specific steps outlined by statute. This chapter describes the general elements and practices common to many public bidding processes and summarizes the responsibilities of the project team members during that process.

The Bidding Process

The bidding process for most public works projects consists of a few basic steps. For library building projects, the bidding procedure is determined by the appropriate regulations of the library's jurisdiction.

Wisconsin's legal requirements for bidding are described in the following statutes:

- s. 62.15, Wisconsin Statutes, for cities and towns
- s. 66.29, Wisconsin Statutes, for counties and villages
- s. 43.17, Wisconsin Statutes, for library systems

If a project receives funding from certain sources—such as a federal Library Services and Construction Act (LSCA) grant—additional requirements may apply to the bidding process. However, the process typically follows the procedure described here. In this chapter, the term "owner" refers to the library board or the municipality, depending on which body has the authority to award the building contract.

Assembling the Bid Documents

The bid documents, or bid package, consist of certain legal documents required by local, state, and federal government as well as the complete set of working drawings and the full set of specifications. The working drawings and the specifications need to be reviewed and approved by the project team, the jurisdiction's building official, and the fire marshal. In Wisconsin, the state Department of Industry, Labor and Human Relations, which is responsible for enforcing the state building code, also must approve the plans.

Other items likely to be included in the bid documents are the following:

- A notice to contractors, which serves as an invitation for bids
- A brief description of the project to be bid
- Detailed instructions to the bidder
- A form for submitting the bid
- A form on which the bidder lists the contractors who would be involved
- Various affidavits required by the state or the local jurisdiction
- A form for a bidder's bond, if required (such bonds often cover "faithful performance," material, and labor, and so on)
- A contract agreement form
- General conditions of the contract for construction; frequently used conditions are provided in the American Institute of Architects (AIA) Document A201
- Any special or supplementary conditions of the contract (Document A201/SC, another AIA form, provides standard contractual language that complies with most federal bidding requirements.)

These materials usually are bound in the front of the book of specifications.

After the jurisdiction's official body formally approves the project, it is ready to be opened to bids. The library administrator should request and retain a set of the bid documents for subsequent use.

Prior to 1983, public construction projects in Wisconsin were required by law to bid the major trades—plumbing; heating, ventilating, and air conditioning (HVAC); and electrical work—separately from other general construction work. Today, public bodies, at their discretion, may bid projects to a single prime contractor or in component parts. While most projects are structured to be bid by a prime contractor, boards and municipalities should consider the best means to approach each project.

Bidding through a prime contractor makes coordinating the work easier for the owner as the owner has only one contractor to deal with. The prime contractor, in turn, coordinates the efforts of the other contractors on the job.

On the other hand, when a project includes work that the owner wishes to monitor and control, that work may be bid separately. This allows the owner to retain a greater degree of direct control over that particular aspect of the project.

In some cases, the project team members may wish to ask contractors to supply cost estimates for alternates, or options, in the plan. Alternates are either "deductive" or "additive," depending upon whether the intent is to reduce or increase the base bid.

Alternates are useful to consider in a number of situations. For instance, if there is some doubt as to whether the building can be built within budget, an alternate may be proposed that requests the contractors to determine the cost savings if certain changes were made. These alternates can vary from using different grades or types of materials or mechanical systems to or reducing the size of the building.

Conversely, if a library board is seeking a supplemental appropriation from the municipality for additional work—such as a larger parking lot—it may be more likely to succeed if it can provide the municipality with a firm price for the proposed work. In this case, an additive alternative may be useful.

The library board and the library administrator may view alternates as a convenient way to maintain control over the project budget and may request cost estimates on a number of alternates. However, each alternate adds to the complexity of the bid documents, and increases the amount of time and effort that a contractor must spend to complete a bid. As a result, too many alternates in the bid package likely will discourage contractors from submitting bids. Thus, the project team must strike a balance between investigating alternates and keeping the bidding package simple and direct.

First costs, rather than long-range values, often influence the choice of alternates. Thus, the library administrator must examine closely any proposed alternates, especially deductive alternates. For example, future expansion could be jeopardized or precluded if a deductive alternate describes a reduction in the floor space. As a result, library buildings may be reduced to bare minimums. Deductive alternates also can result in the use of low grade materials that will cost the library more in the long run in maintenance and replacement expenses.

Invitation to Bid

After the building department and proper jurisdictional authorities approve the working drawings and plans, the library board or other officials of the jurisdiction authorize a call or invitation for bidding. This invitation is a legal notice in newspapers stating the nature of the project and the regulations that govern the bidding procedure. In addition, this notice usually is advertised in trade publications for building contractors. Sometimes the architect also will contact contractors with experience in the type of construction described in the bid package.

Determining the Bid

The advertisement for bid explains how contractors can obtain a copy of the plans and specifications. Most often, the architect is responsible for handling these requests.

The contractors then prepare their bid based on a careful analysis of all building materials and work that will be required to complete the project. During this time, a general contractor solicits bids from subcontractors who specialize in various areas such as electrical, mechanical, and other trades. Finally, the general contractor analyzes the information in the bid package, incorporates the best bids from the subcontractors, and determines a total bid price.

During the bidding process, contractors may discover inconsistencies in the bid documents or may ask for clarifications. These questions should be directed to the architect, who interprets the drawings and provides the needed information. If several contractors raise similar questions or if an important detail has been inadvertently omitted from the plans or specifications, the architect may prepare an addendum to the bid package, which is given to all contractors bidding the job. To keep the bidding process from becoming overly complex, addenda should be kept to a minimum.

Usually, the bids need to be presented on a form provided in the bid package as a part of the specifications. The bid form also provides space for the contractor to enter prices for any designated alternates. This bid form, along with whatever bonds may be required to guarantee performance, must be presented to the owner at a specified time and place for opening.

The Bid Opening

The invitation to bid specifies a date and time when the bids will be opened and read. Customarily, this takes about 30 days after the first advertisement for bids. Legally, bids submitted after the stated hour are disqualified and returned to the bidder unopened. At the designated time and place, a library board member or other official of the jurisdiction announces that the hour has arrived for the opening of bids and proceeds to open each bid and read it aloud. A table is prepared listing the bids of each contractor (see Figure 11-1). Action seldom is taken at this time other than to declare that "all bids will be taken under advisement."

The project team then reviews each bid. All bids are guaranteed for a period of time specified in the bid document to allow the project team to complete its review. Ordinarily, bids are guaranteed for 30 days. Alternates often are guaranteed for a longer period of time than the base bid. If the base bid is guaranteed for 30 days, alternates usually are guaranteed for another 30 days beyond that.

Of immediate interest is the number of bids received and the differences in the bids. Were there a satisfactory number of contractors submitting bids? Were the bids clustered around the low end of the range of bids (usually indicating more intense competition and accurate bidding), or was there a great variation among the bids?

It can be difficult to sort out potential inconsistencies and inaccuracies in each bid. Many factors can contribute to the range of the bids received in any given instance, including the time of year, the general economic conditions, and other major projects bid simultaneously.

Awarding the Contract

Awarding the contract involves two major steps—evaluating the bids received to determine which contractor to recommend for the job and negotiating the legal contract.

■ Figure 11-1

Sample Bid Tabulation Form						
Project Name _____						
Location (city, state): _____						
Bid Opening (date, time): _____						
Bid bond	Contractor	Base bid	Alt #1	Alt #2	Total	Comments

After the bids have been opened, the project team members study each bid to determine which contractor to recommend to the library board. Statutory requirements vary from state to state, but they usually deem that the award be made to the "best responsible" bidder. In practical terms, that translates into the lowest bidder; there is a strong incentive in the public arena to equate the lowest bidder as the best bidder. However, a contractor's reputation, and demonstrated ability to complete work on time with a minimum of contractor-initiated change orders also should be considered.

Usually the architect leads the examination of the bidders' qualifications, focusing on the two or three lowest bidders. The architect carefully examines the bids to ensure that each is complete. Is the bid clearly and fully presented? Are all required bonds and assurances in place? Are there any inconsistencies in the prices quoted? Based on the architect's past experience and understanding of the current market, are the offered prices reasonable?

During this process, bids failing to comply with all requirements are declared invalid. A contractor's statement of qualification may have been included in the bid package, or it may be requested of the lowest-bidding contractors after the bids have been opened. This statement provides information on the size of the firm, its assets, past and current jobs, and so on. The contractor's past clients should be contacted for references. Based on these findings, the architect makes a recommendation to the board, usually for the lowest bidder unless strong evidence discovered during the review disqualifies that firm. The board then approves and forwards the recommendation to the municipality. The award of the contract should be announced to the media.

Following the proper motions to accept the best bid, the library's or the municipality's attorney draws up a specific contract for the project. Some modifications to the standard contract, which should have been included in the bid package, may be necessary. The library's counsel should review and approve these modifications. The authorized parties representing the library or the municipality and the contractor will sign the contract. The contractor also supplies any additional bonds or assurances needed to complete the files. After all the paperwork is completed and in order, construction may begin.

Responsibilities of the Project Team Members

The project team members have varying responsibilities through the bidding and negotiation process. The architect and the library board typically play the most important roles. The library director supports and coordinates the efforts of the architect and the board, as needed. The library building consultant seldom is an active participant in the bidding and negotiation process.

The Architect

The architect's role during the bidding process depends upon the policies and customs prevalent in the jurisdiction. In most cases, the architect counsels the rest of the project team regarding bidding strategies. For example, these strategies consider if the contract be let to a single prime contractor or if there should be separate contracts for portions of the work, and how many alternates should be requested and what they should cover, and so on.

Under the standard AIA contract form, the architect is expected to help answer questions posed by contractors during the bid period. After the bids are opened, the architect also plays a key role in helping the board assess the qualifications of the low bidders.

The Library Board

Within the limitations imposed by the board's relations with other local funding bodies and local practice and convention, the library board is responsible for approving the final bid package, including the strategy for soliciting bids. Following the review of the contractor's qualifications, the board either awards the contract or makes its recommendation to the municipality. If so empowered, the board also executes the contract with the successful bidder.

The construction contract likely will be the largest single contract ever negotiated and executed in the history of the library. Therefore, it bears special scrutiny. It is imperative that legal counsel review the contract. In addition, the board should be apprised of its obligations under that contract as well as the obligations of the contractor and the project team.

Summary

For public libraries, soliciting bids for construction is a process that is regulated closely by statute. Ordinarily, the process involves public notice informing potential bidders of the project, a free and public opening and reading of the bids, and a careful evaluation of the bids. Statutory requirements often call for the library to award the contract for construction to the "best responsible" bidder. With the negotiation and execution of a contract, construction is ready to begin.

This chapter briefly describes the course of events following the award of the construction contract. It also addresses the architect's role during the construction period and the library administrator's special concerns.

The Construction Process

Depending upon the size of the project and local conditions, the contractor usually is given a specified number of days after the contract has been signed to begin work on the project. From that point on, construction is a more or less continuous operation, barring strikes, unfavorable weather, or other setbacks. During the start-up period, the contractor assembles a construction staff, which directs and carries through the project. Arrangements are confirmed with the subcontractors for their services and materials and equipment are ordered.

The Schedule

Erecting a building involves a skilled work force, special equipment, and quantities of all kinds of materials. To avoid costly delays and overlapping, the contractor prepares a construction schedule, which identifies each step in the building process, determines when the subcontractors must be on the job, and establishes when they must have their work completed.

This schedule usually is reviewed with the owner's representative and the architect. A copy of the schedule also should be provided for the library administrator's files. As a part of these preliminaries, the contractor also reviews the schedule with the subcontractors and makes any necessary adjustments.

While most contractors allow some extra time in their schedule for delays, it is seldom possible to foresee all the problems that may arise, especially those created by adverse weather. For instance, a long period of rain or heavy snow during excavation and other site work can result in the loss of days and even weeks of construction time. Weather conditions also play a part when it comes time to apply roofing materials. Unless the weather is dry and reasonably warm during the roofing stage, the finished roof may leak.

These issues and many others make it important to consider the effect weather conditions have on construction when preparing the construction schedule. Whenever possible, construction should begin early enough so that the structure can be erected and enclosed before winter arrives. For most projects, this means getting underway in early spring.

The Preconstruction Meeting

Shortly after the contract has been awarded and all the paperwork has been signed, the architect and the general contractor call a preconstruction meeting, which establishes the procedures to be used to administer the project.

A number of issues are discussed and confirmed at the preconstruction meeting. The general contractor and the subcontractors review the construction schedule and confirm procedures to be followed for the project. Other details regarding the preparation of the job site such as which contractors plan to have office trailers on the job site, where those trailers will be located, and who will arrange for temporary telephone and electrical service to the construction site, also are settled.

The architect reviews any outstanding paperwork relating to the completion of the award of contract and makes sure that all the subcontractors have copies of the blueprints and specifications.

The preconstruction meeting gives the contractor and the subcontractors an opportunity to meet with the architect and the owner's representatives. Library representatives—the library administrator and one or more library board member—should attend this meeting as observers. Each contractor should assign one person to be responsible for communications regarding the project. Likewise, the architect and the owner should designate one person to represent them as the project proceeds.

Requirements for submitting applications for payments also are established. Often, these applications are scheduled to be submitted a few days before the regular meetings of the body that approves such payment, such as the library board or the common council. In addition, procedures for hearing and approving change orders are confirmed, and a schedule for further job-site meetings is developed.

Groundbreaking

The groundbreaking ceremony, a public event signifying the beginning of construction, is arranged and held apart from any formal contractual work. Since most people are interested in a new building project, a groundbreaking ceremony is an excellent opportunity to garner publicity and support for the library.

Weather permitting, a program should be held at the building site and include brief introductions of the major participants in the project. The ceremony can be as simple as having a city or library official placing a spade in the earth or as dramatic as the imagination allows. For instance, a bulldozer or backhoe, with an experienced operator at the controls, may be used in place of a spade. Where demolition is involved, a sledge hammer stroke or similar gesture may be used. The important thing is to dramatize the symbolic beginning for the library.

Site Work

The first visible work often includes fencing the site and setting the survey stakes. Setting survey stakes usually occurs soon after the demolition of any existing surface or subsurface objects. This is followed by excavations for basements and foundations. Soil is leveled and compacted where slabs are to be placed. Trenches are dug to accommodate the plumbing, which goes under the slabs.

Foundations and Slabs

After the initial site work is completed, concrete forms are built, reinforcing steel is installed, the electrical conduit and plumbing are stubbed in, and the concrete is poured. This work often seems to move very slowly. Weather plays an important role in this stage of construction because concrete is affected by temperature and humidity.¹ Frost and freezing weather also can delay construction during these early stages.

General Construction

After the foundation and ground-floor slabs are completed, work seems to progress faster as the building begins to take shape. The framework is erected—of steel or wood, depending on the size of the building and the structural system specified—and the walls

are raised. Next, the roof trusses are lifted into place and windows are installed. When the contractor is working to beat the onset of winter weather, getting the building enclosed is an important milestone.

The interior work moves forward rather rapidly. However, this can be an exasperating phase to observe because from the outside little appears to be happening. In fact, a tremendous amount of work is being done. Plumbing and electrical work, previously stubbed into floors and load-bearing walls, are extended through partitions. Sheet-metal ductwork snakes through walls and above ceilings. Interior partitions are installed where only chalk lines on the floor existed before. When this stage of construction is completed, finish materials are installed, including wall and floor coverings, light fixtures, ceiling tile, door frames, plumbing fixtures, and cabinetry. Floor coverings should be protected by plastic runners during this process. As everything goes into place, there is a final round of cleaning, minor repairs, touch-up painting, and equipment adjustments.

Interior Design Work

As the building nears completion, the interior designer, if one was employed, may begin to supervise and inspect the final interior work. The interior designer worked with the project team in furniture selection, design of casework, wall and floor coverings, and color schemes. He or she inspects the building as the wall and floor coverings go into place. Under the designer's supervision, the casework is installed and the furniture and book shelves are uncrated, checked against purchase orders, and examined for defects or damage.

When all is ready, each item is placed in position according to the approved layout. Installing the book shelves and furniture usually is the final step in building construction.

Keying the Building

A larger library building presents new demands in terms of building security. The old building may have needed just a single key to unlock the front door. The new building, on the other hand, likely has individual offices and storage areas that need to be locked. In addition, the new library probably will contain more hardware and new equipment that could fall prey to theft. And, the library staff may grow large enough that it may not be practical or wise to distribute building keys to every employee.

During construction, the architect and the librarian, possibly with the assistance of a locksmith or hardware expert, determine which staff positions should receive keys. They also examine each door and decide if it requires a lock, and if so, the kind of lock it needs.

The library administrator usually holds the master key that unlocks every door in the building. Copies of the master key may be made, but each copy distributed further decreases the building's security. A safer approach would be to provide library staff with keys that only open the staff entrance.

The architect and a locksmith or hardware expert consult with the library staff to develop a keying schedule. The keying schedule identifies which keys open which doors. For instance, the reference librarian's key could unlock the staff entrance and the door to the reference staff office. The key for the children's librarian could unlock the staff entrance and the door to the children's department office. Thus, both keys unlock the staff entrance, but the reference librarian's key wouldn't unlock the door to the children's department office, and the children's librarian's key wouldn't open the door to the reference staff office.

Two keys to the meeting room may be designed, one to unlock the meeting room and all its adjacent storage areas, the other to open just the meeting room but not the storage areas. The latter key could be loaned to groups wishing to use the library's meeting room after library hours.

Depending on the size of the building, the number of doors, and the number of key combinations that the library wishes to create, the keying schedule can become very complex. These examples suggest some of the simpler combinations that can occur in a keying schedule.

Substantial Completion Walk-through

As work on the building nears the end, a stage will be reached known as "substantial completion." Substantial completion occurs when the architect and contractor agree that the project is ready to be occupied.

Prior to accepting the building, however, the library director and members of the library board, as well as other local officials as appropriate, should accompany the architect and the contractor on a "walk-through," or tour, of the building. The purpose of this tour is to complete a final, detailed examination of the project to determine if all work has been accomplished and to note any flaws or oversights that need to be corrected or finished.

During the walk-through, the condition of all surfaces and fixtures should be noted. For instance, there may be broken ceiling tiles, scratched or cracked windows, soiled or damaged wall and floor coverings, chipped porcelain fixtures, and so on. All light fixtures and electrical outlets should be tested and plumbing fixtures tried for proper flow or leakage. The architect should request proof that all equipment, including water and gas pipelines and the air-conditioning system, has been tested as required in the specifications and operates satisfactorily. Unless otherwise provided, all graphics, signing, and artwork should now be in place.

The architect compiles a final "punch list"—an inventory of work that remains to be completed—on the walk-through. The punch list should be checked for completion but should not preclude review of all facets of work. Usually, the punch list is signed by the owner, the architect, and the contractor to show that they agree the items on the list truly represent the work that remains to be done.

The building keys are turned over to the owner at the point of substantial completion. This event should not be confused with the symbolic transfer of the key, which may be a part of the library's dedication ceremony. Locksets installed according to the keying schedule usually are configured to operate with a special construction key. A simple adjustment to the locks voids all working construction keys. It is a good practice for the owner to have all locks adjusted at this point so any keys that may have strayed during construction are no longer operative.

At this time, the contractor provides the owner with a full set of warranties, guaranties, and instructional literature on the equipment used in the project. For the protection of the owner and contractor, these items should be submitted with an index. The contractor also should review operating and maintenance instructions with the owner's representatives. In addition, the contractor should supply the owner with a complete list of manufacturers' representatives or subcontractors to contact when problems arise, both during and after the warranty periods.

Accepting the Building

Acceptance of the building transfers legal responsibilities from the contractor to the owner. This occurs in two steps. First, when the owner, the architect, and the contractor

sign the punch list, an occupancy permit may be obtained and the move may begin. During the move and the weeks (and possibly months) that follow, the contractor completes the work identified on the punch list.

Second, when the contractor finishes the punch list work, the library board formally accepts the building and the architect files a Notice of Completion. In Wisconsin, this is governed by ILHR 50.10 (3), Wisconsin Administrative Code. This notice certifies that the architect acknowledges that "to the best of his or her knowledge and belief, construction has been performed in substantial compliance with approved plans and specifications." At this time, the last of the contract funds are released to the contractor. These funds usually amount to about 5 to 10 percent of the total fee and frequently constitute the contractor's profit on the job.

Finally, the contractor should provide the owner with one or more sets of "as built" drawings—these are working drawings that have all the changes from the original blueprint carefully marked on them. For instance, an error of an inch or two in the placement of electrical conduit or plumbing in a floor slab may necessitate a slight change in the location of a partition. Even final changes, such as moving electrical outlets or light fixtures to accommodate the furniture and equipment layout, are included. While such changes may seem insignificant, there is always a chance such information may be needed in the future. The architect usually inspects the "as built" drawings to make certain that the corrections are complete, legible, and accurately drawn.

Administering the Project during Construction

The relationship among the owner, the architect, and the contractor is a unique one, formed by legal and contractual structures and by convention. Most interaction among the owner, the architect, and the contractor occurs during visits to the site, formal job-site meetings, action on requests for changes in the plans, and the contractor's applications for payment. The project is likely to go smoother if all parties involved follow common protocols for communicating their concerns to the others.

Visitation during Construction

During construction, the library site is the general contractor's responsibility, and the contractor has the authority to restrict access to the building site. For this reason, it is essential to maintain a good working relationship with the building contractor as well as the architect.

When planning a visit to the site, let the contractor know when you are coming. Check in with the contractor upon your arrival, and ask if there are any special hazards or obstacles that you should avoid. Be prepared to wear a hard hat at all times and to abide by other safety regulations. The contractor's time is precious; focus your questions on important matters.

The architect also makes periodic visits to the job site, often in conjunction with regularly scheduled job-site meetings. Acting as the owner's representative, the architect has the authority to stop work on the project. If the library administrator or a board member visits the site and thinks something appears to be wrong, these concerns should be reported to the architect, who in turn contacts the contractor.

This keeps the architect informed of concerns and potential problems so that he or she may serve more effectively as the owner's representative. It also places the responsibility for evaluating the construction in the hands of the person best suited to make that decision. Regardless of how comfortable the project team members become in their relationship with the contractor, these basic channels of communication must be maintained.

Job-Site Meetings

At regular intervals during construction, meetings will be held at the job site. On large projects, these meetings may be held weekly; on smaller projects, they may be less frequent. Library representatives should attend these meetings as observers.

The purpose of these meetings is to bring together the architect, the general contractor, and the major subcontractors to review recent progress on the job, discuss the work scheduled to be completed in the days to come, resolve potential schedule conflicts, and clarify design questions before they become problems.

Job-site meetings are convened by the architect as part of the architect's responsibility to monitor construction progress. Prior to or after the meeting, the architect should tour the site to observe firsthand the progress since the last visit and to resolve conflicts in the plan.

Change Orders during Construction

A variety of circumstances during the course of construction may require modifications in the original plans. For example, in excavating for the foundation footings, the contractor may encounter a pocket of soil that is unsuited to bear the weight of the building; thus, the foundation plans will have to be revised. Or, the library may receive an unexpected donation to its building fund that allows for an upgrade in the quality of finishes in the meeting room.

As needed to develop change orders, the architect draws plans for such changes and reviews the contractor's cost estimates to ensure that they are fair and reasonable. The library administrator also should review these changes carefully to make sure that they do not affect the building's ability to function as a library. For instance, moving a door a foot or so may seem to be of little consequence to the contractor or architect, but may have great impact if the room is intended to accommodate a large piece of equipment.

Sometimes, changes can be made that offset one another in cost. Whenever possible, the architect should ask the contractor to accept a change order without requesting additional compensation. If additional money is needed, the change order and its anticipated cost needs to be approved by the jurisdiction's authority and, if federal funds are involved, with the agency administering the funds. This expense would be charged to the contingency fund. Since an excessive number of unexpected change orders can increase building cost substantially, the planning team should examine an architect's record on this score when they are in the process of selecting an architect.

Applications for Payment

The contractor submits, usually on a monthly basis, applications requesting payment for the work completed and for materials stored on site but not yet installed. The architect reviews the applications for payment and, based on observations made during site visits and job-site meetings, confirms that the work claimed to be completed is, in fact, complete and payment is justified. Then, the library board reviews and certifies the applications for payment and forwards them to be vouchered and paid. A portion of each payment—up to 10 percent, depending on the terms of the contract—is withheld. This is the retainage, and it is paid to the contractor only upon completion of the project.

Because the contractor submits applications for payment on a regular basis, the library board and its administrator, with the architect's help, can develop and update a payout schedule, which notes the funds that will be needed to pay the contractor in the upcoming months. A carefully constructed payout schedule helps the library board manage its resources to greater advantage and realize a greater return on investments it may make with the construction funds.

The Role of the Project Team during Construction

Throughout this text, the general role of the project team has been discussed. At different stages in the planning process and during implementation of the library's plan, each project team member takes on a slightly different responsibility. It is useful to summarize here the particular responsibilities of each project team member that become especially important during the construction phase of the building project.

The Architect's Role

The architect has several basic responsibilities during the construction phase of the project, they include

- representing the owner as necessary;
- providing architectural supervision of construction;
- solving problems that arise during construction;
- preparing drawings and specifications for change orders;
- compiling punch lists; and
- approving completed work and recommending payments.

If the architect is responsible for the interior design, he or she participates in selecting furniture, wall and floor coverings, and so on. In any case, the architect oversees the installation of casework and furnishings.

The objective of architectural supervision is to ensure that construction complies with the approved plans and specifications. An architect's regulatory obligations to monitor construction are described in ILHR 50.10, Wisconsin Administrative Code. Local building code officials usually are responsible for enforcing building codes and regulations.

If details in the plans and specifications contradict one another, the architect is responsible for interpreting the working drawings and determining the course to follow. Some changes may require redrawing the structural details; approving alternate materials, methods, or equipment; and presenting the changes to local building officials.

When such changes are substantial or require additional money not provided for in the building contract, the architect is responsible for preparing formal change orders, which must be approved by all concerned—owner, contractor, building officials, and architect.

Throughout construction, the architect prepares punch lists to itemize the problems that must be resolved. The architect compiles a final punch list during the substantial completion walk-through.

In addition, the architect reviews the construction on his or her periodic visits to the job site to determine if a progress payment to the contractor should be authorized. If the architect decides that a progress payment is in order, he or she sends a written notice to the owner, which includes a detailed account of the work completed and in progress.

The Construction Supervisor

On large construction projects, the owner may wish to have a representative on the job at all times. This degree of supervision exceeds the scope of a standard contract for architectural services. For an additional fee, the architect may be retained to perform more detailed supervision or a third party may be hired. This third party, known as the construction supervisor or clerk of the works, is knowledgeable in all phases of construction and oversees the construction stage of the project.

Given the power to halt work if a serious problem arises, the construction supervisor works with the architect and the contractor to solve construction problems. The construction supervisor also makes certain that the materials and quality of work meet specification standards and that the conditions of the contract are met during all phases of construction.

A skilled construction supervisor can call attention to potential problems, warding off trouble and expensive change orders, and often is worth many times his or her salary by the time the job is completed.

The Library Board's Responsibilities

During the construction phase, many library boards appoint a building committee and charge it with closely monitoring the project. The building committee also may be responsible for reviewing and approving change orders that require action before the next regularly scheduled board meeting. Delegating this authority to the building committee often makes it easier to secure approval of a change order in a timely fashion.

The library board reviews the contractor's applications for payment and certifies those applications when they are in order, unless the municipality reserves this authority for itself. The library board also is responsible for reviewing change orders.

The Role of the Library Administrator

The role of the library administrator during construction includes, but may not be limited to, reviewing change orders and inspecting shop drawings of casework, which consist of detailed drawings produced by the company furnishing cabinetry and built-ins.

These drawings require careful study—paying special attention to all dimensions including those of drawers, shelving, and other components—to determine if they fulfill all requirements. For instance, if a 3" x 5" card doesn't fit into the slot made for it because of failure to accurately measure the dimensions on the shop drawing, the result is an embarrassing and unnecessary problem. It may be helpful to go over the drawings with library personnel who will be using the fixtures to ensure that all aspects have been considered. Where necessary, build mock-ups to test new designs or concepts.

The Role of the Library Building Consultant

The library building consultant's role during construction varies with the project. The consultant usually is involved with change orders that may affect how the library functions. In addition, the consultant is concerned with the library's interior design and participates in the selection of furniture and equipment. The library building consultant can be particularly valuable in remodeling and additions projects as unexpected conditions often arise that preclude earlier plans or offer opportunities not originally available.

It often is helpful for the building consultant to accompany the library administrator on several site visits. The experienced consultant's ability to understand and interpret the languages of architecture, construction, and library science, plus his or her knowledge of building codes and practices, can be very useful in meetings with the contractor, owner, and architect.

Summary

Beginning with the selection of the contractor, the construction phase gets underway. The contractor assembles the construction team, hires crews, prepares a schedule of construction, and signs contracts. At this time, the owner also may employ a construction supervisor for day-to-day supervision, although the architect has the final authority for construction supervision.

After the site is surveyed and excavation completed, the first structural work begins. Soon, the building begins to take shape as teams of workers from various trades complete their work.

During the construction phase, change orders may have to be issued to account for unexpected work or unforeseen conditions. These changes require careful consideration by the architect, the library board, and the library administrator. Such changes may add to the building's cost and may delay its completion.

The library administrator will need to check change orders and inspect shop drawings. If an interior designer has been employed, he or she assists in selecting wall and floor coverings, color schemes, furniture and equipment and supervises their installation.

At the substantial completion walk-through, the architect prepares a final punch list that calls attention to work the contractor needs to correct or complete before responsibility of the building is turned over to the owner.

The construction process is a complicated one. It is to the library administrator's advantage to fully understand the role of every person involved from start to finish. Above all, clear and careful communication throughout the construction phase among the owner, the architect, and the contractor will help ensure a smooth and successful project.

Endnotes

1. In Wisconsin, regulations concerning the mixing and placing of concrete are covered in ILHR 53.40-53.42, Wisconsin Administrative Code, which adopts by reference the standards of the American Concrete Institute (ACI Std 318: *Building Code Requirements for Reinforced Concrete*), the American Society for Testing and Materials (ASTM C 317: *Standard Specifications for Gypsum Concrete*), and the American National Standards Institute (ANSI A 59.1: *Specifications for Reinforced Gypsum Concrete* and ANSI A 122.1: *Specifications for Vermiculite Concrete Roofs and Slabs-on-Grade*).

Preparing to move into the new library facility should begin as soon as a library building project gets underway. This chapter presents some salient matters relating to occupying the expanded library.

The Move

Moving a library probably would be similar to moving an office operation if it were not for the collections. Many reports and case histories describe the experiences of relocating a library's collections. In 1966, William H. Kurth and Ray W. Grim wrote *Moving a Library*,¹ which anyone contemplating a library move should read. While Kurth and Grim mainly address problems in moving a large library, many of their principles are applicable to any library move, regardless of its size. Because this text is available, only a few highlights of the moving process will be discussed here.

What Will Be Moved?

The first issue to resolve is determining what is to be moved. Seldom is the answer as obvious as it may first appear. Develop a complete list of items to be moved, including furniture, equipment, and supplies. As you compile this list, you may find that some items are marginal in terms of moving costs and future use. Items that need cleaning or repair should be placed on a special list and scheduled for appropriate attention. As for the collections, a thorough culling prior to the move will be helpful.

Reorganizing the Collections

Occupying a new building provides an opportunity to reorganize the collections. This reorganization will have been described in the building program statement.

In preparing for the move, classification numbers or location symbols of the reorganized collections must be changed, added, or deleted from book spines, labels, shelf list, and the catalog. The quantity of material affected will determine the amount of staff time required.

It is confusing to both the public and staff when a library collection fails to follow a logical sequence or arrangement when call numbers in the catalog do not match the intended book on the shelf. This is especially true in a new building.

If the collection is to be divided into special arrangements in the new building or if two or more formerly separated groupings are to be incorporated, work should begin early. Kurth and Grim provide sound advice on this subject.²

Commercial Movers, Library Staff, or Volunteers?

Whether the move should be made by library staff, community groups, or by a commercial mover will depend on several factors, including the amount of material, furniture, and equipment to be moved and the distance between the old and new facilities. In a number of library moves, staff and volunteers have done the packing and unpacking and a commercial mover is responsible for the transport.

Because a limited number of people can be used simultaneously to reshelve the collections, a relatively small, well-trained task force usually is groomed for the job. The library staff also must devote time and energy to other activities, including the final shelf reading.

Scheduling the Move

This depends on such factors as the quantity of materials to be moved, the complexity of removing materials from one building and placing them in another, and who will do the moving. The move cannot begin until the building is ready to be occupied. Moving into the building before substantial completion may make it difficult to place responsibility for any damage that occurs after the move. For instance, damage to the walls or broken glass may be affixed to the move rather than to the final work by the contractor. Therefore, careful coordination with progress on the job site is necessary.

The move may be accomplished in phases, especially if an addition to the existing building is planned. Typically, the library's furnishings are taken into the completed addition so that the contractor can complete any called-for refurbishing in the old part of the building. The furnishings are then moved again when the entire project is completed.

Clearly, a move such as this should be organized so that the material that is to remain in the addition is situated in its final location as much as possible. This reduces the amount of material that needs to be moved twice.

How Long Will the Move Take?

While many libraries remain open and provide partial to full service during the move, usually the moving time is shortened and the effort eased by closing the library during the move, sometimes for several weeks. For an especially complex and lengthy move, a temporary outlet or branch may be established to give interim reference service and provide some popular reading material. This helps keep the public's inconvenience to a minimum.

Planning for the move should get underway as far in advance as possible to allow for adequate preparation and consideration of the several alternatives. A year of planning time is not too much for most libraries, though the actual move may be done in a matter of a few days. If library staff or volunteers handle the move, it may take longer than if a commercial moving firm is employed.

The Administrator's Responsibilities

The library administrator is responsible for planning the move, acquiring any temporary staff that may be required, and in many instances, negotiating for the services of a community group or commercial firm to transport library materials and furnishings. Detailed advance planning is imperative. In addition, plans and schedules must be devised for providing any temporary service during the period of closure. If qualified staff are available, the library administrator may delegate the responsibility of devising a plan for the move. During the move, the library administrator assumes full responsibility of seeing that all items are properly boxed, labeled, transported, and located in the new building.

Staff Orientation

During building construction, the library administrator has an obligation to ensure that all staff members are familiar with the new building. This can begin with a study of the plans, especially those drawings that show the furniture layout. Since many people have difficulty in visualizing a new setting, a scale model would be helpful. In cooperation with the contractor, tours of the building in progress may be arranged for small groups of staff members. When the building is ready to be occupied, the staff should be given an opportunity to examine every nook and cranny, including mechanical equipment rooms, storage areas, and closets. Complete familiarity with the building is essential so that the library staff can provide users with accurate information. The custodial staff also needs time to become familiar with the building and acquire the supplies it needs for cleaning and maintenance. While the library is closed for moving, brief daily staff meetings can help to resolve minor problems and answer questions.

Before the building opens to the public, the staff members should hold at least one dress rehearsal, with members taking turns role-playing library users and library personnel. These rehearsals should address the questions that are certain to arise, including all the "Where is . . ." queries. By practicing and working together, the library staff soon will be able to provide short, concise responses to many of the questions they likely will encounter. This should include giving directions to virtually anything in the building, such as restrooms, drinking fountains, public telephones, offices, and materials on a particular subject.

By following the directions, staff members can check the accuracy of the instructions and determine whether the directions can be improved or if signs are needed. Given time to become thoroughly acquainted with the new building and confident in their ability to find things and give directions, the staff members will be prepared to open the library's doors to the public.

The Dedication Ceremony

Dedication ceremonies assume various forms, depending in part on the policies of local government and traditions in the community. Usually, the dedication is a gala affair since it is an opportunity to recognize everyone who assisted in the project. The time of the year and the size of the building largely determines whether the dedication is held in the building or outdoors. In either case, the formalities should include the introduction of the entire project team, and perhaps provide the architect and contractor opportunities to give short speeches. If a local dignitary or guest speaker is invited to make a longer address, other presentations should be kept very brief.

Several months before the building is ready to be occupied, the library administrator or the board should form a Dedication Day Committee, including representation from the library board, community, governmental jurisdiction, and library staff. Sample copies of dedication programs to provide background information can be borrowed from your regional library system or the state library agency. Some of the decisions to be made include the following:

- When will the ceremony be held?
- Where will the ceremony be held (for instance, inside or outside)?
- Who will preside?
- Who will be introduced and how much time, if any, will be allotted for speeches?
- Should a local dignitary or someone from outside the community, be invited to make a brief address?
- Will there be a formal ribbon-cutting ceremony? If so, who will participate?
- How many can be expected to attend?

- How will the open house and library tour be handled?
- Is there a group willing to furnish refreshments, or should funds be raised to provide them?
- Who will serve the refreshments?
- Who will handle publicity, including designing the dedication program?
- Should the architect or someone else be asked to prepare a fact sheet covering the building's most notable features?
- How will invitations be handled and by whom?

One question that frequently is raised asks if the dedication should occur at the time the building opens to the public or should it be held sometime later? The answer depends on various circumstances. One important factor to keep in mind is that there is likely to be much more public interest if the ceremony takes place as the building is opened for public use.

Often, the local media provides coverage on the progress of the new building, especially if it is informed of newsworthy developments. Such media attention increases the public's interest in the project. Capitalizing on this rising tide of interest often, under normal circumstances, outweighs other factors such as a delay in receiving some furnishings or graphics. However, coordinating a formal dedication at the same time as the final construction and the move can prove to be seemingly overwhelming.

The dedication celebration also offers a special opportunity to recognize gifts made to the library building fund and to encourage additional contributions. Significant donors should be listed in the program and on a plaque mounted in a prominent place in the library.

The week following the formal dedication can be a special time for continuing the celebration. For instance, each day can focus on a particular library service area or function. And, the public can be invited to tour the building under the guidance of specially trained volunteers.

So many benefits can be accrued from a carefully planned and conducted dedication that it's well worth the work and energy. Above all, it is an opportunity to generate widespread community involvement.

The Adjustment Period

The first year or so should be considered an adjustment period for a new building. It needs to go through at least an entire year before its reaction to the climatic conditions of each season is known. As the outside temperatures and weather conditions change, the response of the air-conditioning and heating systems must be monitored so that the contractor can make any necessary adjustments. Achieving a balance in the systems can be a slow and intricate job.

A new or remodeled building often has materials and finishes that require special cleaning and maintenance. Perhaps the most obvious of these is carpeted rather than hard floors. Thus, floor maintenance requires vacuuming instead of scrubbing and buffing. In addition, wall surfaces often are covered with vinyl materials or special paints, and a variety of new materials are used in desks and counter tops, chairs, and other furniture. And, the new building probably will have more and larger windows to be washed. Overall, the cleaning and maintenance standards often are higher in a new structure, which will affect the amount of maintenance time, the schedules of the maintenance workers, and the quality and quantity of the cleaning materials.

The library administrator should expect to handle a variety of minor building crises in the first year. The file of warranties and equipment instruction pamphlets the contractor provided will prove particularly valuable during this period. In addition to any system or equipment malfunctions, the first year's occupancy may reveal defects in materials or construction, which the contractor customarily is liable to repair within the terms of the warranty.

Occasionally, problems arise that require the services of the architect. Often, architects keep close tabs on the new buildings they have designed to provide assistance as well as to learn of any errors or oversights. Sometimes, unpredicted problems occur. For instance, in one case, sunlight reflected from the windows of a structure erected adjacent to a library was a constant source of irritation until the architect designed a system of drapes and louvers to control the glare.

At other times, problems can raise a question of liability—whether a particular problem was caused by poor design on the architect's part or is the result of faulty construction. These matters must be arbitrated and the trouble remedied.

Summary

Long before the building is ready to be occupied, the library administrator must formulate plans for the move, staff orientation, and dedication. Community participation in the dedication should be encouraged and welcomed. Adequate staff planning and preparation will have much to do with the success of the move and the orientation program. After the building is occupied, the first year should be considered an adjustment period for the structure.

Endnotes

1. Kurth, William H., and Ray W. Grim. *Moving a Library*. New York: Scarecrow Press, 1966.
A more recent work, *Library Space Planning*, by Ruth A. Fraley and Carol Lee Anderson (New York: Neal Schuman, 1985), contains an extended discussion of moving strategies, sample moving specifications, and a useful bibliography of moving case studies; see pages 89-131, 135-141, and 149-151.
2. Kurth and Grim, p. 71.

Evaluation—The Beginning and the End

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Completion of the library building project does not mark the end of the process for the library administrator; it merely concludes a major phase. Throughout the entire project, the library administrator should reflect on every facet of the plan in terms of present and future services. During the development of the building program statement and in the analysis of every plan presented by the architect, the library administrator and the project team tries to anticipate how the building will affect, and improve, the services offered to the public. Now, after the library has settled into the expanded facility, the original questions that initiated the building project can be answered. Have you provided for the collections, services, and special facilities your community needs? Does the allocation of space to various areas of service reflect community needs and interests? Will there be room for expansion, and is the building flexible enough to respond to predicted community changes and needs?

If, after careful study, you feel that the library building is an accurate reflection of community requirements, you have done well. On the other hand, if the building is little more than additional space for services and features that satisfy only a fraction of the community, it may be necessary to make further changes. Unless library users find improvements in service, the new building will hold only temporary interest for them and business will lapse into the same old pattern.

Postconstruction Evaluation

After the excitement of the grand opening has subsided, it is time to study the library building project objectively. This evaluation should include an accumulation of evidence on a variety of topics to answer questions such as the following:

- In what ways are the library's services and collections being used more or less?
- Which services and collections have experienced the greatest change in use, and why?
- If more people are using the library, who are they, where do they live, and what are their demographic characteristics?
- Has the new building attracted new users? Why or why not?
- Has the geographic pattern of use changed? If so, how and why?
- Has the demographic profile of library patrons changed for various age groups? In what ways?
- What complaints do patrons register most frequently? What do they seem to like the most?
- Since the building opened, have any changes been made in the arrangement of furnishings?
- Are there any areas that don't function as well as the project team anticipated?
- What specific features of the building generate the most staff complaints or cause the most problems? Can they be remedied?
- Does the arrangement of collections function as well as expected?
- Has ease of supervision met expectations?
- Has the design of the circulation counter and other staff desks improved or hindered staff efficiency?
- Does the staff appear able to meet the demands of the public readily and conveniently?
- Have workroom layouts proven efficient under operating conditions?
- Have there been problems relating directly to the construction of the building, such as annoying drafts or wide variations in heating and cooling capacities?

- Is there objectionable glare from windows?
- Has acoustical insulation in walls between staff workrooms and public areas proven to be adequate?
- Are floor and wall coverings functional and easy to maintain?
- Are the furnishings standing up well to public use?
- Have maintenance and operation costs proven to be higher or lower than projected?
- Have there been any electrical, mechanical, or plumbing problems?
- Has any equipment—such as automatic doors, elevators, or dumb waiters—required service beyond normal maintenance?

Encouraging Other Viewpoints

This review and evaluation should be shared with staff members so they understand that things can be changed when there is reason to believe that the result will be a marked improvement. However, since people often resist new ways of doing things, be sure that innovative methods, processes, and equipment have had a fair chance to prove their advantages before modifying them or reverting to former practices. On the other hand, do not cling to anything that has proven wrong simply because you or other staff were once sold on it.

By all means, involve other project team members in the postoccupancy evaluation. Frank discussions with the architect, interior designer, consultant, and others involved in the planning will provide further input into your assessment and help resolve problems that may have arisen.

Architects and interior designers are interested in the building and environments they have created and are curious to know how things perform under day-to-day conditions. They should be invited back to the library a year or so after occupancy to see if their design is working as expected. Library administrators may even want to add a provision to the architect's contract requiring a return visit for a postoccupancy evaluation. A substantial completion walk-through could be repeated with the architect to determine if each space operates the way it was intended.

Further insight can be gained by asking for help from community representatives pledged to honest criticism. Their participation may reveal unfamiliarity with features that you thought were well-known. At other times, they may call attention to previously unseen obstacles. They also may be counted on to provide helpful suggestions. In addition, this practice can increase public acceptance of and support for the new library.

There is no such thing as a perfect building. Therefore, an honest evaluation will give you answers to those who ask, "What would you do differently if you had it all to do over again?" Such questions usually are posed to gain insight and understanding rather than to criticize the facility. Thoughtful, documented answers that point out the positive, as well as identify things that might have been done better, will do much to help librarians from other communities and to enhance the image of the library in your community.

Resolving Immediate Problems

After these questions have been answered, it is time to evaluate them. Has the design been reasonably successful? Which public and staff complaints seem most justified? What can be done now at minimum expense to remedy the problems that have emerged in the postoccupancy evaluation? Can simple adjustments be made in collection arrangements, furniture placement, or additional signing to solve any problems? Should a service counter be modified slightly? Should a new electrical receptacle be added or an existing one moved to provide greater convenience?

Simple solutions often solve what at first appear to be insurmountable problems. It may be necessary to call on the architect or consultant for suggestions to a particularly difficult problem. Uninhibited by the constrictions of day-to-day familiarity with the building, the architect, interior designer, or consultant can often arrive at solutions that otherwise may be overlooked. If the building's design can respond to the community's changing needs, then adjustments can and should be made.

Indicators of Future Needs

A final use of the evaluation is to look for indicators that reveal pressure points that must receive attention sooner or later. Sometimes it is a matter of reassessing the schedule for adding more bookstacks or filling another staff position. Perhaps you will want to reconsider the readers' accommodations you planned to add later, such as adding more carrels and fewer tables and chairs.

Soon, you will become sensitive to library pressures of all kinds, and before long you will know if growth is going to be at the predicted rate. Based on this conclusion, you can begin projecting when the community may be need to add a new wing or make some other major adjustment in order to provide adequate library services and facilities.

Evaluation studies should be conducted at three- to five-year intervals. The results should be accumulated and used to make modifications as may be indicated and to prepare for larger changes in the future. Those who view such evaluations as possible channels for criticism should remember that it is best to discover defects and find solutions beneficial to all. More often, you will look at each evaluation report with satisfaction, knowing that you have helped provide a library that fulfills the increasingly sophisticated information needs of the community.

Summary

A library building project continues long after the acceptance of the building and its dedication. Issues that motivated the original expansion project will remain crucial issues for the library. Determining if the project succeeded in addressing those issues cannot be assessed immediately. The library staff and the community need time to settle into the building before the project can be evaluated effectively.

After the building has been occupied for about a year, the project team should reassemble for a postoccupancy evaluation. This evaluation assesses if the design truly helped the library meet its service criteria. The postoccupancy evaluation also points out the design concepts that worked well and those that didn't function as expected. And, the project team can identify changes to make that will improve the library's service to meet the community's needs. After the initial evaluation, similar studies should be completed at regular intervals as part of the library board's continuing effort to assess the library's effectiveness.

Every library building project is a learning experience. It begins with the realization that the community's library needs have outgrown the facility. Some building projects proceed smoothly and uninterrupted from that point; others progress in stops and starts, and delays seem to spring at every turn.

A successful building project results from the convergence of many factors, including: a dynamic library administrator and an enthusiastic staff, a dedicated library board, a supportive city council, the right economic climate (if such a thing exists), the right political climate, a positive electorate, an insightful library building consultant, and a creative architect. When these elements fail to come together, there may be little that library planners can do to make a building project happen. Yet, when these elements unite, the result is a new library addition or building.

The single best thing a library board and staff can do in relation to a library building project is to anticipate one. The Public Library Association advises library boards that planning is a continuous cycle. The goals and objectives the board establishes determines the criteria for evaluating the library's efforts to implement its plan. In turn, the results of evaluating the plan lead directly to a new round of goal setting. By engaging in this continuing review, the library board is better able to respond to the community's needs for new services.

So it is with facilities planning. The library board and staff should assess their facilities regularly to determine if the facilities can be improved to better serve the community.

Assessing the library facility doesn't mean that the only way to improve community services is to construct a new building. Rather, an assessment provides an opportunity to take a fresh look at the facility. For instance, an assessment may reveal ways to reassign space to highlight new library services and trends.

If the assessments begin to suggest that the library is truly suffering from a lack of space, the studies should become more intense. A thorough understanding of the library's space needs, the alternatives to meet those needs, and the implications of each alternative is the best tool the library board and staff members can possess when they describe the library's status to the city council or the community.

When a library building project becomes a reality, the library board and staff and the community embark on an exciting challenge. The decisions the library building project team make will shape and affect the library's service capabilities for many years. This handbook was created to help those involved with a library building project to meet that challenge. Its success will be determined by the contribution the book makes to those who use it as they carry out library facility expansion projects.

References

Literature on library buildings includes books, articles in periodicals and professional journals, and special publications such as proceedings of workshops and institutes. Some of the following titles are out-of-print or soon to be out-of-print; therefore, it is important to consult updated resources for references that may supersede those listed.

Current periodical materials can best be located by referring to the *Readers' Guide to Periodical Literature* and to *Library Literature: An Index to Library and Information Science*. Further citations can be found through databases, such as WILSONLINE, ERIC, and LISA. Your state library agency or regional library system can supply references to current information sources.

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Space Allowances for Library Furniture and Equipment

The following is a general list of space allowances for special use and other library furniture and equipment. For furnishings not mentioned here, estimate a space allowance by using comparably sized items identified in the list.

<i>Equipment/Furnishings</i>	<i>Space Allowance per Unit</i>
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Shelving Units

Standard 3' width on a 3' aisle	10 sq. ft.
Standard 3' width on a 4' aisle	15 sq. ft.

Seating

Reader seating at tables	25 sq. ft.
Reader seating at carrels	30 sq. ft.
Reader seating at AV carrels	35 sq. ft.
Reader seating in lounge chairs	40 sq. ft.
Public seating in meeting room	10 sq. ft.

Offices and Work Rooms

Library director's office	150-250 sq. ft.
Public work stations	150 sq. ft.
Professional staff	125 sq. ft.
Clerical and professional staff	100-125 sq. ft.
Secretary and reception	100 sq. ft. plus 30 sq. ft. for each seat in the reception area

Miscellaneous Library Furniture

Card catalog, single face	35 sq. ft.
Card catalog, double face	100 sq. ft.
On-line public-access catalog (OPAC)	35 sq. ft.
OPAC with printer	40 sq. ft.
Atlas stand	35 sq. ft.
Dictionary stand	30 sq. ft.
Index table (six-place)	140 sq. ft.
Paperback rack	35 sq. ft.
Newspaper rack	25 sq. ft.
Vertical files, per cabinet	10 sq. ft.
Map file	35 sq. ft.
Audiovisuals storage units*	15 sq. ft.

Display case	50 sq. ft.
Microfilm/fiche reader	35 sq. ft.
Microfilm cabinet	10 sq. ft.
Public typewriter	35 sq. ft.
Public-access microcomputer	50 sq. ft.
Photocopier	30 sq. ft.
Photocopier with sorting table	50 sq. ft.
Small-group study rooms	25 sq. ft. per seat

*This allocation represents the floor space needed for a generic storage module that houses a variety of nonprint materials, such as book/cassette kits, puzzles, and filmstrips. Specific storage units may require different amounts of space.

Library Expansion Alternatives Work Sheet

This work sheet, presented on the following page, can be used to describe and compare the alternatives under consideration to meet the library's long-term space needs. Criteria for evaluation often include the following:

- physical condition
 - structural
 - mechanical
 - plumbing
 - electrical
- site and location
- usefulness of space
- future expansion
- provisions for handicapped access
- interim conditions
- estimated costs
- other

An example of a completed work sheet appears in Table 3-1.

Library Expansion Alternatives

Factor	Alternative 1:	Alternative 2:	Alternative 3:	Alternative 4:

Factor	Alternative 1:	Alternative 2:	Alternative 3:	Alternative 4:

Suggested Topics for a Building Program Statement

The following topics often are covered in a building program statement. Individual items must be adapted to the local situation, and others may be added as needed. Suggestions that are not applicable can be disregarded.

I. The Entrance

A. Characteristics required for the entrance

1. High visibility
2. Easily identifiable as being a library
3. Street-level access (i.e., no steps)
4. Inviting appearance
5. Appropriate signing
6. Adequate security
7. Safety provisions (e.g., nonslip surfaces)

B. Basic relationships (exterior)

1. To parking and passenger drop-off
2. To pedestrian access
3. Other

C. Basic relationships (interior)

1. To lobby
2. To circulation desk area
3. Other

D. Requirements for automatic door, if specified—sliding preferred to swinging doors

E. Display cases and bulletin boards at the entrance

F. Orientation to avoid glare or excessive transmission of heat and cold through glass

II. Interior Areas for the Public

A. Circulation desk area

1. Circulation control system and its requirements, including the equipment and space requirements
2. Charging and discharging processes, including the space and number of book trucks required
3. Registration system and its requirements for files, supplies, and space
4. Number of staff at circulation desk at any one time
5. Number of patrons served at the circulation desk per hour at present and in the future, including any problems of queue control at busy times
6. Space required for handling reserve books and the return of overdue materials, including work space, shelving, book trucks, and files; indicate maximum number of volumes on reserve at any one time
7. All other activities carried on at the circulation desk, including the personnel, equipment, and supplies involved
8. Collection security system

B. Adult services area

1. Purpose and services
2. Special considerations or requirements to observe in planning the adult services area

3. Space required to accommodate the adult services materials, equipment, and furnishings
 - a. Number of volumes in the circulation collection, followed by a breakdown of the collection into categories—such as the following—that should be considered separately in space allocation and organization
 - (1) Fiction
 - (2) Nonfiction
 - (3) Reference
 - (4) Other volumes (specify and list)
 - (5) Periodicals
 - Number of current periodical titles
 - Number of bound periodicals in back files
 - Number of linear feet of unbound periodicals in back files
 - (6) Audiovisual materials (identify here unless addressing AV services separately, see item II.D.)
 - Number of phonodisc recordings
 - Number of audio cassettes
 - Number of compact discs
 - Number of videocassettes
 - Number of 16mm films
 - Number of 8mm films
 - Number of framed pictures
 - Number of posters
 - Number and type of other AV materials
 - (7) Microform materials
 - Number of reels of microfilm
 - Number of fiche
 - Number of readers and reader/printers
 - (8) Describe and count the number of volumes in any other special collections to be housed
 - b. User accommodations
 - (1) Number of seats at tables
 - (2) Number of seats at study carrels
 - (3) Number of seats at audiovisual (wet) carrels
 - (4) Number of seats in lounge areas
 - (5) Other space requirements for users (specify, describe, and quantify)
 - c. Number of public service desks for adult services (reference, etc.)
 - d. Space required for special items of furniture and equipment
 - (1) Number of filing cabinets for vertical files (typically three- or four-drawer cabinets)
 - (2) Number of jumbo filing cabinets for mounted pictures (typically three-drawer cabinets)
 - (3) Number of card catalog drawers
 - (4) Number of periodical index tables (give approximate dimensions or number of seats at each)
 - (5) Number of atlas cases
 - (6) Number of dictionary stands
 - (7) Other items (list and describe)
4. Relationship of the adult services area to other areas in the library
 - a. Entrance
 - b. Circulation desk
 - c. Children's area
 - d. Staff workroom
 - e. Other

5. The relationships of elements within the adult services area
 - a. Collections
 - b. Staff service desk(s)
 - c. Adult seating
 - d. Catalogs, periodical indexes, etc.
 - e. Displays
 - f. Other
- C. Children's services area
 1. Purpose and services
 2. Special considerations or requirements to observe in planning the children's services area
 3. Space required to accommodate the children's services materials, equipment, and furnishing
 - a. Number of volumes in the collection, followed by a breakdown of the collection into categories—such as the following—that should be considered separately in space allocation and organization (note special divisions often found in children's collections)
 - (1) Fiction
 - (2) Nonfiction
 - (3) Reference
 - (4) Picture books
 - (5) Easy books (primers or first readers)
 - (6) Books separated by grade
 - (7) Audiovisual materials
 - b. User accommodations (note the possibility of introducing different sizes of seating environments, scaled to the needs of older and younger children)
 - (1) Number of seats at tables
 - (2) Number of seats at study carrels
 - (3) Number of seats in lounge areas
 - c. Number of public service desks for children's services
 - (1) Children's librarian's office
 - d. Space required for special areas or special items of furniture and equipment
 - (1) Programming or storytime room
 - (2) Atlas and dictionary stands
 - (3) Display cases and bulletin boards
 - (4) Filing cabinets
 - (5) Other items (list and describe)
 4. Relationship of the children's services area to other areas in the library
 - a. Entrance
 - b. Circulation desk
 - c. Adult area
 - d. Staff workroom
 - e. Other
 5. Relationship of elements within the children's services area
 - a. Collections
 - b. Children's seating
 - c. Staff accommodations
 - d. Displays
 - e. Storytime area
 - f. Other

D. Audiovisual services

Note: If the audiovisual services are to occupy a separate area rather than be integrated into the adult services area, then a section of the program statement needs to deal with the AV services requirements. Space for nonprint materials would be deleted from the general accounting in item II.B.3.a.(6) and placed in II.D. (Audiovisual services). Section II.D. should provide an itemized account of the nonprint materials to be housed. It also describes how the area relates to other parts of the library and the number and nature of accommodations, including audiovisual carrels, group viewing rooms, and preview rooms. If there is to be a production facility for video and/or other purposes, it may be addressed either here or in II.F. (Special purpose areas). Requirements for an AV workroom could be addressed in III.F. (Audiovisual or media workroom).

E. Young adult services area

Note: If the library is to have a young adult services area, indicate requirements using items similar to those for the adult or children's services areas.

F. Special purposes areas

1. Meeting and/or conference room(s) and provisions for each
 - a. General description of programs and other uses for the room(s)
 - b. Relationship of meeting and/or conference room(s) to other areas of the library
 - (1) Entrance
 - (2) Adult area
 - (3) Children's area
 - (4) Staff area
 - c. Number of people to be accommodated
 - d. Platform facilities needed
 - e. Projection facilities
 - f. Storage facilities for chairs, tables, etc.
 - g. Kitchen facilities
2. Typing room(s)
 - a. Number of typewriters
 - b. Location of room(s) and relationship to other areas
3. Video production facilities
 - a. Studio
 - b. Control center
 - c. Set and equipment storage
 - d. Other
4. Radio facilities
 - a. Broadcasting (AM and/or FM)
 - b. Citizens band (CB)
 - c. Other
5. Nonprint media production
 - a. Audio
 - b. Film
 - c. Captioning
 - d. Dry mount
 - e. Other

III. Staff Offices and Work Areas

Note: Discussions of all staff offices and work areas should include precise information on the requirements for desks, casework (i.e., cabinets and built-ins), storage, sinks, electrical outlets, telephones and other communications devices, and any other special items.

- A. General relationships
 - 1. Number of staff offices and work areas
 - 2. Relationship of staff offices and work areas to one another
 - 3. Relationship of staff offices and work areas to delivery and/or staff entrance
 - 4. Relationship of staff work areas to other areas of the building
- B. Administration offices
 - 1. Receptionist-secretary
 - 2. Library administrator
 - 3. Other administrative staff
- C. Public services (other than administration, technical services, extension services)
 - 1. Public services supervisor (e.g., head of reference)
 - 2. Public services staff workroom
- D. Technical services work room
 - 1. Technical services activities, including a flow diagram
 - 2. Technical services supervisor (e.g., head cataloger)
 - 3. Order clerk(s)
 - 4. Cataloger(s)
 - 5. Processor(s)
 - 6. Typist(s)
 - 7. Collections maintenance (e.g., mending and binding)
 - 8. Tools
 - a. Shelf list
 - b. Bibliographic tools
 - c. Authority files
- E. Circulation workroom
 - 1. Routine activities, including overdues and registration (use flow diagrams where appropriate)
 - 2. Chief circulation clerk's office
 - 3. Circulation clerks
 - 4. Special equipment
 - 5. Files
- F. Audiovisual or media workroom
 - 1. Space required for equipment, materials, staff, and activities
 - 2. Film service—cleaning, inspection, and maintenance
 - 3. Recordings—cleaning, inspection, processing, and testing
 - a. Disc
 - b. Tape
 - 4. Media preparation and production
 - a. Tape duplication
 - b. Film production
 - c. Video
 - d. Darkroom facilities
 - e. Other
- G. Extension services workroom
 - 1. Extension services activities
 - a. Branch libraries
 - b. Stations
 - c. Bookmobiles
 - d. Other
 - 2. Number of and space requirements for staff
 - 3. Work flow
 - 4. Space requirements to carry out duties and activities
 - 5. Storage requirements for extension services collections

- 6. Access to delivery and shipping room(s)
 - 7. Special requirements and conditions
 - H. Space requirements for system and network activities
 - 1. Interlibrary loan, unless covered under another topic
 - 2. Telecommunications equipment
 - 3. Number and requirements of staff
 - 4. Activities associated with system and network participation
 - 5. Special collection storage requirements
 - 6. Other
 - I. Custodian workroom
 - 1. Custodial duties and responsibilities
 - 2. Supplies to be stored
 - 3. Equipment to be housed
 - 4. Repair work requiring shop space
 - 5. Cleaning facilities
 - 6. Location of auxilliary supply closets and sinks
 - 7. Other
 - J. Other offices or workrooms
- IV. Other Areas
- A. Delivery entrance
 - 1. Location in terms of site considerations
 - 2. Relationship of delivery entrance to other areas of the building
 - 3. Frequency and type of pick-up and delivery
 - 4. Equipment requirements
 - a. Receiving counter
 - b. Shelving
 - c. Sink and electrical outlets
 - d. Other
 - B. Staff lounge
 - 1. Number to be seated at any one time
 - 2. Number of seats at table(s)
 - 3. Lounge seating
 - 4. Kitchen requirements
 - 5. Sink
 - 6. Appliances for staff use
 - 7. Cupboards and other storage space
 - 8. Location and relationship to other areas of the library
 - 9. Decor
 - C. Staff quiet room
 - 1. Purpose and use
 - 2. Location
 - 3. Furnishings and decor
 - D. Public restrooms
 - 1. Separate facilities for adults and children
 - 2. Location of restrooms in relation to other building elements
 - 3. Ease of staff supervision
 - 4. Requirements for preventing vandalism
 - 5. Custodial maintenance requirements

V. Miscellaneous

- A. Paging requirements
 - 1. Process for sorting and reshelving returned materials
 - 2. Number of book trucks needed
 - 3. Amount of shelving needed for sorting
- B. Outside book return
- C. Signing and graphics requirements
 - 1. Interior
 - 2. Exterior
- D. Communications requirements
 - 1. Telephone
 - 2. Public-address system
 - 3. Fire and intrusion protection
 - 4. TDD (telecommunications devices for the deaf)
 - 5. Other
- E. Other

VI. Conclusion

- A. Summarize data
 - 1. Collections
 - 2. Public seating
 - 3. Library staff needs
 - 4. Special space requirements
- B. Concluding remarks



Excerpt from a Library Building Program Statement

The following excerpt is adapted from a library building program statement and is provided as an example of how to present some of the items discussed in Chapter 4. While program statements vary in quantitative data and relationships, the topics covered often are very similar.

This program statement was prepared for a new library building designed to serve a community of about 30,000 people in a semirural area of another state. In addition, the facility serves as the county's library headquarters, supplying branch and bookmobile service to an additional 25,000 people.

This excerpt is taken from Chapter 4 of the building program statement. It addresses the library's entrance and discusses its relationship to the major areas of the library, which is then expanded upon in subsequent chapters. While this approach may result in some repetition, it often is the most practical method.

In this particular program statement, prior chapters have discussed "Concepts and Rationale," "Planning Criteria," and "An Overview of Major Divisions of Library Operations." These chapters contain a sizable amount of information, which are reiterated only to draw attention to specific requirements or exceptions mentioned in other parts of the program statement.

The Entrance and Circulation Area

The library's entrance and the area immediately surrounding it is one of primary importance involving a number of special considerations. To be effective, the entrance must bear a proper relationship to both the exterior and interior of the building. It should be inviting and easily reached. Once inside the door, it should be easy for visitors to orient themselves to the major areas of the library and to feel an invitation to explore the library's collections and services.

Types of Library Visitors

Those who come to the library for other than casual reasons usually fall into one of four groups. By describing each of these, some insight can be gained.

The Short-term User

While varying from day to day and hour to hour, a substantial proportion of the library's daily patronage enter the library with the intention of making only a brief trip, often to return previously borrowed materials. Some wish to pick up reserve books or locate a fact or simple piece of information. Perhaps as many as one-third to one-half of the library's users fall into this category and stay 30 minutes or less.

The Long-term User

Comprising the second group, the long-term user comes to the library for extended periods of time to browse through the collections, read, use other materials in the library building, or do extended research. The number who fall into this category will increase in the new building because of the improved surroundings, the enlarged collections, and greater range of services. For the most part, these people seem to be more casual in their approach to the library since they are less concerned with making the most of a brief stay. Senior citizens, particularly, find the library environment attractive and may spend much of the day or evening in the building.

Group Participants

The third group consists of those who come to the library as a part of a formal or informal group to participate in a particular activity or program. When group meeting space becomes available, this portion of the library's public will increase manyfold. Among the many types of learning experiences that will attract groups will be film showings, book reviews, Great Books discussions, Contemporary Affairs and Problems series, and so on. Some programs will be aimed at particular age groups such as children, young people, or senior citizens; others will be of interest to people of all ages.

Because groups can cause traffic problems and create congestion, noise, and confusion within the library, access to meeting areas should be carefully planned to avoid routing everyone through reading or stack areas. (See "Group Meeting Facilities" in Chapter 9.)

Library Staff and Others

The fourth group consists of library staff members who use the main entrance unless the delivery entrance or special staff entrance is more convenient. Also included in this group are those who come to the library on business, such as sales or publishers' representatives and truck drivers making deliveries. For those who make deliveries to

the library, access to the delivery entrance should be so convenient that they are not tempted to use the public entrance.

The Public Entrance

The public entrance should present a positive relationship between the exterior and interior of the building. Without becoming an overpowering element, it should have strong architectural appeal, establishing in the mind of the visitor that without a doubt it is where one enters this building! It is surprising how often this simple matter is overlooked.

Location

The location of the public entrance is a matter that must be decided by the architects in terms of the new structure's total design, interior spaces, and general orientation on the site. There should be easy access to the parking lot and to the street. In terms of the site, this means that the public entrance probably will be located somewhere north of the present structure and may face east. However, this should not rule out the studies that would place the public entrance elsewhere—perhaps on the north side of the building.

Walking distance from a parked car to the library entrance should be minimal since many people carry heavy and awkward loads of books and other library materials. Here, the library faces a problem typical to shopping centers wherein public resistance to use grows as the distance between parked car and entrance increases. Also, adjacent parking will be required to accommodate users that are physically handicapped.

Traffic on Locust Street also must be considered. At least two existing conditions pose special problems:

- the parking lot at the corner of Court and School streets, which the City has indicated may be expanded and used for library parking, and
- the senior citizens' building, which is located opposite the library on Locust Street.

With a growing number of people using the library, pedestrian traffic crossing Locust Street to the library is bound to increase. Some kind of control, perhaps a fully operational traffic light and pedestrian crosswalk at School and Locust streets, appears to be needed to ensure human safety. This must occur before work on the new library building is completed to avoid undue risk. If traffic, both vehicular and pedestrian, at this intersection cannot be controlled for whatever reason, then further consideration should be given to providing an increased amount of off-street parking near the library to reduce the number of library visitors that need to cross the streets.

Street-level Entrance

The public entrance should be at street level and barrier-free. Gently sloped walks can be used to bridge whatever incline may be necessary to bring the library floor to its proper height in relation to the existing building or grade. Such walks should be wide enough to permit easy passage, for those in wheelchairs.

Lighting and Signing

The entrance should be fully lighted both as a sign of welcome and as a safety precaution. An illuminated sign should be readily visible to passing motorists. If the structure is located some distance from the street, the sign may have to be set at ground

level near the street rather than attached to the library building. Such lighting and signing should be inherent parts of the structure—not tacked on as an afterthought.

The Entrance Doors

The public entrance doors should be recessed to provide adequate overhang protection. However, they should not be so deeply recessed as to be lost in the facade of the structure. The doors should be automatic sliding glass doors. This is essential since so many patrons arrive at or leave the library with their arms full of library materials. If local code requires, additional doors may be incorporated into the entrance and armed with panic hardware for emergency use only. All automatic door closure hardware should be located for quiet operation and easy access for maintenance. All doors require proper and substantial locking mechanisms.

Relationship of the Entrance to the Interior

The public entrance should exhibit a natural and positive relationship to the interior of the building. From the entrance, visitors should be able to quickly orient themselves to the location of major library collections and services. A bubble diagram, Figure 1, shows those elements that are involved. Essentially, these include the location of the children's room, the adult services area, the circulation and registration desk, the card catalog, and a point of access to any other floors on which public services may be located.

The Entrance Lobby

The entrance lobby should be compact. Traffic flow here must be smooth since those entering and leaving the library and others moving from one section of the library to another pose a potential conflict in traffic patterns. The decor of the lobby should establish the library as a friendly but businesslike place; further, the lobby serves as a transition to the quieter areas within the library.

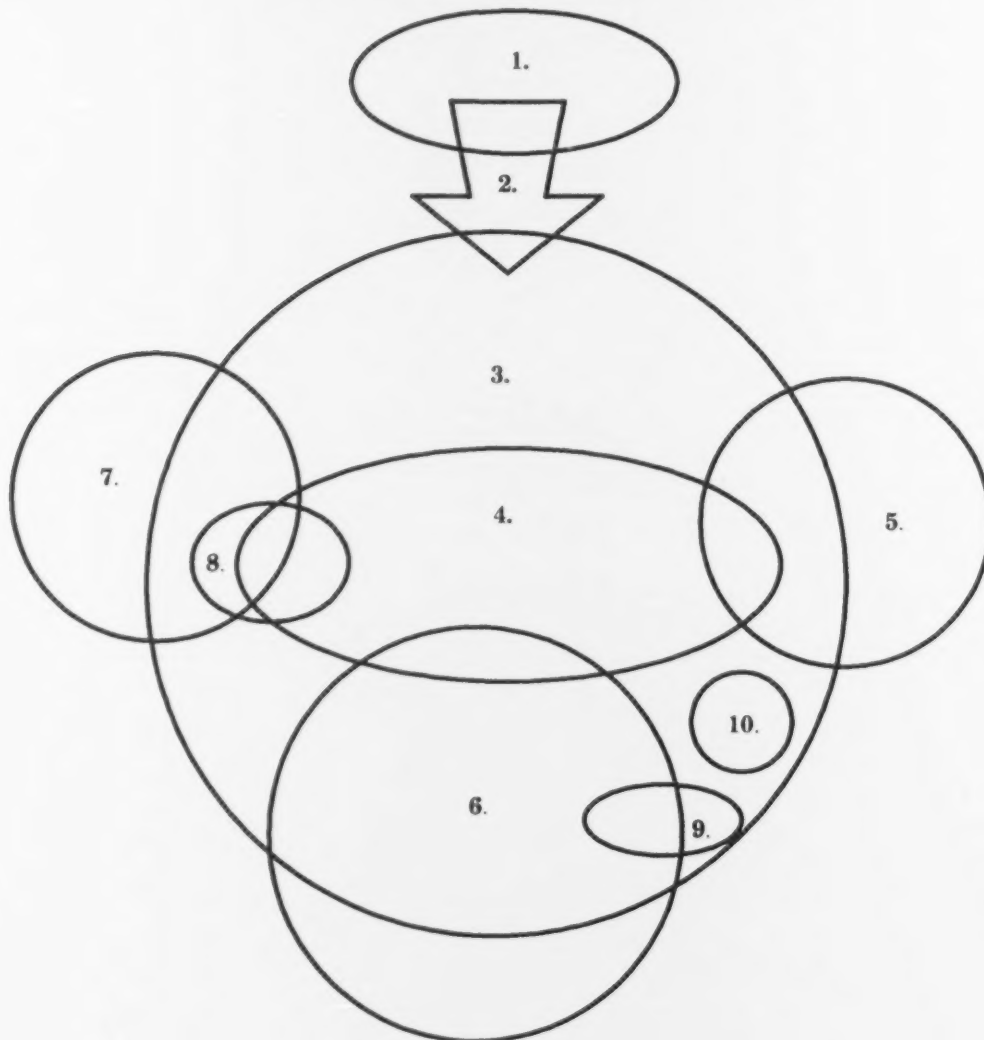
Outside Book Returns

No outside book return is shown in Figure 1, though libraries in the past have customarily placed one in the entrance to facilitate after-hours return of books. However, such devices jeopardize the internal security of the entire building, subjecting it to potential vandalism or theft. Therefore, it is proposed that a sufficient number of free-standing book returns be placed curbside in lieu of an internal after-hours book return.

Circulation Services, Office, and Workroom

Upon entering the building, the visitor should be immediately aware of the circulation services area where library materials can be returned, borrowers' cards issued, and so on. However, this desk must not be overwhelming since many people have no immediate need for the services offered here and wish to move further into the library without feeling they are going past some sort of sentry position. The office of the chief circulation clerk and the workroom for circulation staff should be adjacent, but not necessarily physically connected, to the circulation services desk.

Figure 1
Schematic Relationships of the Entrance to
the Major Elements of Library Service



- | | |
|-----------------------------------|---|
| 1. Pedestrian access from parking | 6. Adult services |
| 2. Entrance | 7. Circulation staff workroom |
| 3. Entrance lobby | 8. Chief circulation clerk |
| 4. Circulation services | 9. Catalog and bibliographic center |
| 5. Children's services | 10. Elevators/stairs to other levels (if any) |

Youth and Adult Services

As previously stated, visitors should be able to visually orient themselves to the library's major areas while passing through the entrance area. Both the children's and adult service areas should be visible. It is important that this visual introduction be an inviting one, featuring views of library materials and reader accommodations.

Card Catalog and Bibliographic Center

The card catalog and its attendant bibliographic sources should be immediately available to the person entering the library. This is a place of "beginning" for those who know how to use a library effectively. The adult reader assistants and/or reference librarians also consult these sources frequently in the course of their daily duties. Therefore, the card catalog's location must be given careful thought in designing the layout. In the final analysis, convenience to all concerned is the key word. It is expected that within five years of occupying its new building, the library will convert its catalog from the present card format to an automated catalog. Appropriate electrical and data transmission service must be provided to this area, as described in Chapter 2, "General Interior Features."

Vertical Access

If the design of the library results in a building of more than one level and public services are offered on more than the main level, it is important that control over vertical access occur at the entrance. If an elevator is provided, and one must be if public services are split between levels, it should be clearly visible from a station that is staffed at all times.

The Central Circulation Desk

The various circulation functions are shown in Figure 2. The purpose of this area is to provide proper space for staff, equipment, and users involved in record-keeping operations that enable the library to record and keep track of library users and the materials they borrow. Both adult and juvenile users will be served at this central desk. Since staff, public, and materials tend to converge at this key point, traffic analysis and control are very important to avoid congestion.

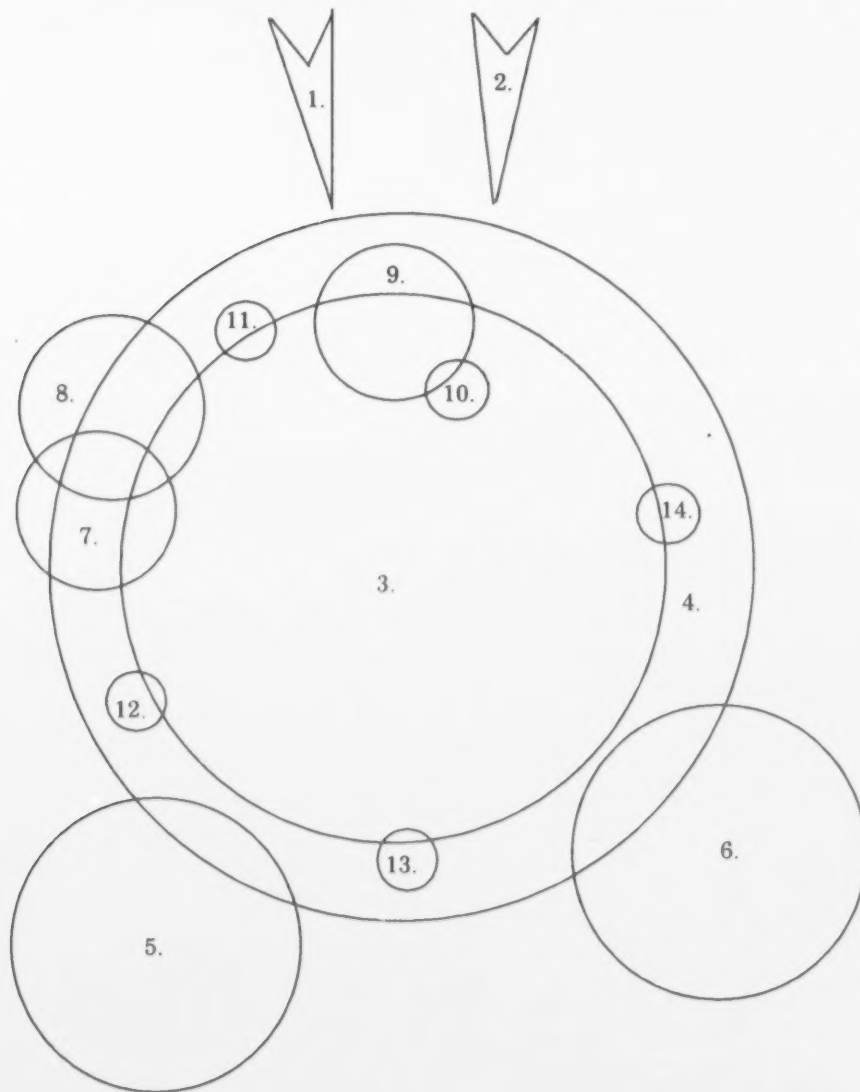
Entrance and Exit

Traffic control suggests that the public should enter by one door and exit through a separate but reasonably adjacent door. These should be automatic glass sliding doors. If necessary to meet building regulations, additional doors can be installed next to these provided they are armed with panic hardware and alarm mechanisms.

The Circulation Desk

If possible, the circulation desk should be considered as a single island unit that provides space for the various functions that must occur here. Under some conditions, the desk may be split into two stations—with book return and sorting taking place at one area and the remaining functions conducted at the other—allowing the public to flow between the two desks. However, this arrangement requires additional staff except in moderately large libraries where more than one person is needed to handle all the traffic entering and leaving the building.

Figure 2
Schematic Relationships within the Circulation Area



- 1. Public entrance
- 2. Public exit
- 3. Circulation desk area
- 4. Circulation lobby
- 5. Adult services
- 6. Children's services
- 7. Chief circulation clerk's office

- 8. Circulation staff workroom
- 9. Book return
- 10. Returned materials sorting
- 11. Payment of fines
- 12. Borrower registration
- 13. Reserve book pick-up
- 14. Charging stations

The Circulation Lobby

The circulation desk should be surrounded by a circulation lobby that serves as a buffer. At the busiest times, the lobby will have to handle lines of users waiting to check out materials. This should be possible without interference to other traffic or operations. The lobby also acts as an acoustical buffer and as a transition space leading into the public areas.

Adult and Youth Services

Library users from the adult and children's departments will use the same circulation desk. This flow of traffic can become hectic when school classes visit the library and line up simultaneously to check out their books. Fortunately, this usually occurs when the adult patronage is limited. Lines of 12 to 15 people waiting to check out materials at closing time or at peak use periods are not unusual, though the library staff makes every effort to facilitate this operation.

Office of the Chief Circulation Clerk and Circulation Staff Workroom

Staffing the circulation desk can be made more efficient by locating the circulation work areas and the office of the chief circulation clerk adjacent, but not necessarily connected, to the circulation desk. Since the chief circulation clerk is engaged both in supervising the circulation clerks and in assisting users who may have some particular problem with circulation or registration controls, the office for this person should be immediately accessible to public and staff alike. This office should be 100 to 125 square feet in size and contain a desk, credenza, and a four-drawer legal file. The detailed requirements for this office and workroom are provided in Chapter 8, Staff Workrooms and Offices.

Book Return

It is expected that borrowers returning books and other materials will place these items in the slots provided in the circulation counter. Materials received this way will slide into depressible book bins inside the circulation counter area. Since a large portion of users entering the library do so to return books, it is important that this group be handled quickly to avoid unnecessary congestion. Immediately adjacent to the book return units library pages will sort the books for return to the shelves. This activity requires the use of book trucks, which in turn must be moved from this area to the book stack area in the adult and youth services areas. The combined capacity of the two book bins should approach 600 volumes.

Payment of Fines

Unless library fines are discontinued before the new building is constructed, a station near the book return area at the circulation counter needs to be provided for collection of the fines. About six lineal feet of desk space will be required for this operation, which involves a circulation clerk examining overdue materials to determine the amount of the fine, conveying this information to the borrower, collecting payment of the fine, and depositing the money in the cash register. A recess in the desk needs to be provided for the cash register. In addition, the clerk must frequently check certain files kept at the circulation desk, particularly those concerned with borrower registration and overdue records.

Borrower Registration Area

Many who enter the library wish to "get a library card" before doing anything else. Therefore, it is important that the portion of the circulation desk at which this function occurs is as conspicuous and convenient as possible.

The registration transaction is a simple one and the environment in which it is done should reflect this. This is important since the library is trying to attract an increasing number of people who have been alienated from agencies that require filling out long forms, disclosure of what many consider private and personal information, and so on.

Registration procedures vary, depending upon the system in use. However, the library's current manual registration system requires the applicant to fill out an application form which is checked against a master registration file kept at the desk in 3" x 5" drawers. A library card usually is typed on the spot by the circulation clerk and given to the new user, assuming that all the records are clear.

Reserved Materials Pick-up

Materials that people reserve in advance will be picked up at one point at the circulation counter. This may include material other than books, such as films and recordings. Space will be needed for shelving about 100 items. This may be incorporated into the counter or adjacent to it. Items coming through interlibrary loan also will be placed here for customer pick-up.

Check-out

In terms of volume, the number one activity at the circulation counter consists of checking materials. In most instances, this is the borrower's final stop before leaving the library; therefore, the check-out should be located near the exit.

At present, the Visalia City Library uses the Gaylord charging system, which employs a small machine about 12" wide, 16" deep, and 12" high. It is possible that the charging system will be changed between now and the time the new building opens. The new system most likely will be an extension of the automated circulation network coordinated by the regional library system. During the course of designing the fixture work, this will have to be finalized since the circulation control system will have some effect on the amount and kind of space required. In any case, provision should be made for future computer terminals, both at the charging and book return areas.

Although a single check-out point can handle a considerable volume of business, the fact that there are several peak periods of activity each day points to the need for at least one additional check-out point. Depending upon the configuration of the circulation counter and the surrounding space, this may be located at a different part of the counter or at a separate island-type counter.

Conclusion and Space Requirement Summary

The entrance and circulation lobby with the circulation counter is one of the most important elements in the library building. However, the circulation control counter must not be allowed to become monumental in size and appearance. It serves a business function and should convey this impression to the library users.

It is approximated that the entrance and circulation areas will require about 1,200 square feet of space. However, this figure is subject to modification; it is provided here as an estimate and may be useful to preliminary space design. Ultimately, the number of square feet required for the entrance and circulation areas will be determined largely by factors not governed by this program.

Request for Proposal for Consultant Services

Library building consultants typically are sought by issuing a request for proposal. The names of prospective library building consultants sometimes are found through advertisements in the library press (*Library Hotline*, *Library Journal*, *American Libraries*, and so on). However, most library boards acquire consultants' names from their regional library system or state library agency, recommendations from neighboring libraries, or through a directory such as LAMA BES *Library Buildings Consultant List* (see Appendix A for a full citation). The selected consultants are invited to submit proposals detailing how they would approach the planning project at hand.

The method used to invite consultants to submit their credentials is a request for proposal, or RFP. A request for proposal should identify the nature and scope of the project, provide pertinent background information about the library and the community, and describe the information needed to evaluate the proposals. Some jurisdictions will have extremely detailed requirements for the submitted proposals. Proposal forms may be available that can be used to elicit the desired information. Check with the municipality regarding specific local requirements and procedures for securing professional and consultant services.

Typically, proposals are evaluated based on their thoroughness and clarity. Reference calls made to the consultants' current and previous clients are important. In some cases, the selection process may include an interview with consultants; the interview may be conducted by telephone in certain circumstances.

An outline of topics to include in an RFP follows. It suggests the kind of information that should be elicited through the RFP process. Specific local conditions may call for the expansion, addition, or deletion of some topics. RFPs from other projects and other communities provide valuable assistance in determining the kind of information to request. Sample RFPs also can be obtained from your regional library system or your state library agency.

Sample RFP Outline

- I. Introduction/Purpose
 - A. Identify the scope of the project
 1. Service and space needs assessment
 2. Evaluation of alternatives to meet that need
 3. Development of a written building program statement
 4. Evaluation of alternative sites
 5. Furniture selection and preparation of interiors bid specifications
 6. Review of proposed plans and working drawings
 7. Other
- II. Background
 - A. Describe the community
 1. Location
 2. Current size and growth trends
 - B. Describe the library
 1. Current holdings
 2. Current facility(ies)
 3. Political setting (e.g., Is there a library board? If so, to whom does the board report?)
 - C. Describe existing data that is available to assist in the study

1. Annual reports to the state library agency
 2. Long-range plans
 3. Library user surveys or citizen surveys
 4. Library floor plans
 5. Local comprehensive zoning and development plans
 6. Other
- III. Objectives of the Study
- A. Detail here specific questions to be answered by the study described in the introduction
- IV. Proposal Requirements
- A. List the documents or information that the consultant or firm will be required to submit
1. Legal name, address, and telephone number of the consultant/contractor
 2. Names of people who will be responsible for the project
 3. Resumes or vitae for those individuals named in #2
 4. Statement of the problem, reciting the consultant's understanding of the nature of the problem
 5. Description of the methodology to be used to address the questions posed in Section III (this description usually is divided into specific tasks, detailing the amount of time expected to be allotted to each task)
 6. Financial proposal detailing the cost basis and total cost for elements such as study team personnel, clerical support, travel expense, and other expenses (postage, reprography, etc.), overhead, and so on
 7. Reference list of previous clients
 8. Copy of a similar report completed for a previous client, if available
 9. Other
- V. Special Requirements
- A. Note any additional requirements or conditions to be met as part of the study
1. On-site presentations at public hearings or to specified governing boards
 2. Additional copies of the final report to be provided under the contract
 3. Alternative formats for submitting the report (the library board may want a paper copy *and* a machine-readable copy of the report)
 4. Dates for progress reports and other interim reports
 5. Attendance at a prebid conference or site visit (this requirement usually is exercised only for large projects)
 6. Specific target groups, if any, that should or must be involved with the project (city council members, Friends representatives, county commissioners, etc.)
 7. Other
- VI. Criteria for Proposal Evaluations
- A. List who is involved in the evaluation
1. Library board members
 2. Library director
 3. Others
- B. Identify criteria involved in the evaluation, including specific weights applied to each criteria
1. Capability to conduct the study
 2. Experience with projects of similar scope
 3. Evidence of special expertise, as needed (e.g., historical preservation)
 4. Clarity of proposal

- 5. Cost
- 6. References
- 7. Other

VII. Timetable

- A. Identify the anticipated timetable for receiving and reviewing the proposals and awarding the commission (allow at three to four weeks for the preparation of a response, more time for a larger, more complex project)
- B. Specify if interviews are to be a part of the selection process
- C. Indicate the anticipated timetable for the project as a whole and any particular deadlines, such as the due date for a final report.

VIII. Formalities

- A. Include any language regarding rights, liabilities, and requirements
 - 1. The library board's right to reject any and all proposals
 - 2. The library board's right to waive informalities
 - 3. The library board's right to negotiate mutually acceptable revisions to a proposal
 - 4. Ownership of data gathered and documentation prepared during the course of the study
 - 5. The consultant/contractor's liability for all costs incurred in developing a proposal
 - 6. Equal Employment Opportunity requirements
 - 7. Insurance requirements, if any
 - 8. Other

IX. Submittal Requirements

- A. Indicate where and when proposals must be received as well as who to contact for further information (Consultant/contractors' questions and the library board's clarifications should be summarized and sent to all potentially interested bidders; deadlines for the receipt of questions should be built into the proposal's timetable to allow for this)

Sample Letter of Inquiry to Architects

The following sample letter of inquiry to architects may be adapted to suit local needs and submitted to architects who may be interested in the library's building project. A discussion on architect selection is in Chapter 5. Additional information may be available from the state library agency or the state chapter of the American Institute of Architects.

Dear

The board of the Sampleville Public Library has determined that an expanded facility is needed to adequately serve the residents of Sampleville. It has been suggested that your firm may be interested in supplying credentials for consideration.

The Sampleville Public Library presently occupies a Carnegie-vintage facility of 2,545 square feet at the corner of Fourth and Main streets in Sampleville. A space needs assessment (see enclosed report) suggests a need for nearly four times that amount of space, 9,575 square feet. Due to constraints on the existing site, new construction is anticipated and three parcels have been acquired one block south on Main Street. A building program statement has been prepared; a copy is enclosed.

The library board would like to know if your firm would be interested in being considered for this project. If so, the board would appreciate receiving a letter stating your interest, along with the following documents:

- General information regarding your firm, such as when it was established, who are the principals, the size of the firm, areas of special interest and expertise, and so on
- A resume of current projects—including anticipated square footage, construction budgets, and projected completion date—and a list of completed projects, especially of libraries and other publicly funded projects, likewise noting size, budget, and completion date
- Resumes of individuals in your firm that would be responsible for this project and a description of the role each is expected to play
- A list of other firms (engineers, interior designers, etc.) with whom your firm regularly works and that may be employed on this project
- A list of other qualifications or criteria of particular importance, such as prior experience with historic preservation if the project involves such work

If you are interested in being considered for this project, please send this material to us by March 30. The library board will examine the submittals and contact the firms selected for interviews. The board's review will take four to six weeks. At this time, the board expects to interview up to five firms. The firms selected for interviews will receive in advance a list of questions that will be addressed in the interview.

Thank you for your consideration.

Architect Evaluation Matrix

This matrix, presented on the next page, can be used to evaluate and compare and the qualifications of architectural firms being considered for the library's design commission.

To begin, list the evaluation criteria, as determined by library board, in the left-hand column and fill in the key at the bottom of the matrix with the names of the architectural firms to be evaluated. The library board should consider the issues and concerns that relate to the library building project as it decides the evaluation criteria. Such criteria often include the following:

- organization
- experience
- performance
- design
- location

In the "Max. Pts." column, fill in the number of points allowed for each criterion. Allot the maximum points on a weighted basis, assigning the greatest number of points to the most important criteria and giving the less important fewer points.

Then, for each criterion assess and log the points that each firm earns. Add up the points for each numbered column to determine which firm best meets the criteria established by the library board. Refer to Chapter 5 for more information regarding architect selection.

Architect Evaluation Matrix

Selection Criteria	Max. Pts.	Architectural Firms						
		#1	#2	#3	#4	#5	#6	#7
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
Total Points								

Key to Architectural Firms

#1:	#5:
#2:	#6:
#3:	#7:
#4:	

Suggested Interview Questions to Ask of Architectural Firms

The following questions may be used in interviews with the architects who have qualified for the library's list of candidate firms. Questions should be sent to the architectural firms prior to the interview to allow them time to prepare their responses.

Note that specific local conditions may warrant additional or alternate questions. For example, if a project involves some historic preservation, the architects should be asked to discuss their experience with and approach to historic preservation projects.

Suggested Interview Questions

1. In projects of this type and size, how would your firm use the building program statement?
2. In what ways and to what degree have you familiarized yourself with our project?
3. If awarded the contract, what steps would your firm take leading up to schematic design?
4. What you think your firm's major strengths are in design, and what are some of its achievements in this field?
5. What processes will your firm use in solving the design problems presented by this project? Indicate the approximate proportions of time you would expect to allocate to the following:
 - a. schematic design
 - b. design development (preliminaries)
 - c. working drawings and specifications
6. Based on your knowledge and concepts of our requirements, what major design problems do you foresee, and how do you propose to handle them?
7. Since the efficiency of the internal operations of the library will depend on the effective handling of materials, what experience or expertise does your firm have in this area, and how would you approach our materials-handling problems?
8. How will your firm approach the interior design? Will you rely on internal expertise or employ the services of an interior design firm? If the latter, what firm or firms do you recommend, and how would their fee be covered?
9. Please supply evidence of your firm's ability to accurately estimate construction costs on projects of similar size and type.
10. How does your firm arrive at its costs estimates at the end of each stage of planning? Do you ever employ a cost engineering consultant? If so, what firm(s) do you recommend?
11. How will your firm manage construction supervision?
12. Assuming that we, as the owner, provide a clerk of the works during construction, how can the work best be organized and supervised for maximum results?
13. How would your firm's fee structure apply to our project, what services are included, and what ones are considered to be outside the contract fee?
14. If we, the owner, request additional technical input during the process of planning—in areas such as acoustics, lighting, or internal communications—how would your firm supply these and how would the fees be covered?
15. What experience has your firm had and what special expertise would you offer in areas such as automation and data processing, telecommunications systems, and nonprint materials?

16. If, in spite of our best efforts, the project construction bids exceed the allocation of funds, how would you help to determine that best ways for reducing project costs? How would this be reflected in your fees?
17. (For large firms only.) What opportunities would the client be given to select design and project architects from your staff?
18. (For small firms only.) If we were to decide to retain your firm for this project with the provision that you associate with another firm, what firm would you select and why? In the case of such a joint venture, please indicate the responsibilities you would delegate to the associate firm. Please comment on the following items:
 - a. design
 - b. production of drawings and specifications
 - c. construction supervision
19. What experience has your firm had with the "planning team" approach to projects of this size, and how would you expect to use the planning team as a resource?
20. Please supply a reference list of recent clients whom we can contact.

Note: If the project is for remodeling and/or expansion, add the following questions:

21. Based on your knowledge and concept of the project, how would your firm propose to handle the design problem of unifying the proposed addition with the existing structure?
22. We believe the aesthetics of the library's exterior and interior are extremely important; how will your firm create a building that conveys warmth, grace, as well as a sense of dignity and unity?

Site Selection Matrix Work Sheet

This matrix work sheet, presented on the next page, can be used to evaluate the sites under consideration for the library's expansion project. Evaluation criteria often include the following:

- size of the parcel
- availability of the site
- cost of the land
- accessibility of the site
- visibility of the site
- adjacent uses and services
- orientation of the site
- zoning of the site
- topography of the site
- shape of the site
- hidden obstacles and subsurface conditions of the site

To begin, fill in the key below the matrix chart with a brief description of the sites being evaluated in the matrix. Next, list the criteria in the left-hand column of the chart, and enter the multiplier for each one in the "Weight" column.

Then, enter each site's rating for each criterion in the appropriate cell (left of the slash) under the "Rating/Score" column heading. Next, in each cell, multiply the rating and the criterion's weight and enter the product on the right side of the slash. After finding the scores for all the cells, add together the scores for each site and enter the total at the bottom of the chart. A completed example matrix appears in Table 6-3.

Site Selection Matrix Work Sheet

Criterion	Weight	Rating/Score					
		Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
		/	/	/	/	/	/
		/	/	/	/	/	/
		/	/	/	/	/	/
		/	/	/	/	/	/
		/	/	/	/	/	/
		/	/	/	/	/	/
		/	/	/	/	/	/
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		/	/	/	/	/	/
		/	/	/	/	/	/
Total Score							

Key:

Site 1: Site 4:
 Site 2: Site 5:
 Site 3: Site 6:

Furniture Inventory/Evaluation Work Sheet

This work sheet, presented on the following page, can be used to inventory and evaluate the condition of the library's furniture and equipment. It identifies which pieces of furniture will be most useful in the new or expanded facility. An example of a completed work sheet appears in Table 9-1.

Furniture Inventory/Evaluation Work Sheet

Item No.	Item	Location	Description	Reuse as Is	Refinish or Repair	Undecided